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PRESENT TRENDS IN MEDICAL EDUCATION

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The history of medical education in this country constitutes a most interesting evolution toward university discipline and standards. Many of the early physicians were true sons of the mother of invention. Obvious community need prompted socially minded young men to seek the only available plan of medical education, namely, the preceptor plan. Fortunately medical education comes not only from those who profess to teach, but, in equal degree, from those who practice. A certain amount of reading, careful observation, close association with the master, and a generous participation in his daily routine, resulted in a surprising degree of efficiency in the art of medical practice. Purely scientific training was utterly wanting.

The earliest physicians in the American colonies were usually clergymen pursuing medicine as a companion profession. In England, this was considered desirable for service in the church. Such a combination in the preceptor constituted a splendid background for the student, who found it necessary to cope with conditions in a new country with a rapidly expanding population, virtually devoid of facilities for the care of the sick. Under such conditions, spiritual solace was often sorely needed. There were practically no university opportunities, such as existed in European countries, and no available hospitals organized for medical training. Consequently, the preceptor manfully met the pressing need.

Early in the nineteenth century, 90 per cent of the physicians in this country were practicing without degrees from medical schools, and less than 20 per cent had ever attended medical lectures. In spite of this condition, there was no lack of vision and ambition. Medical societies were organized and standards were evolved with the purpose of differentiating between the competent and incompetent in the practice of medicine.

Since there were no medical schools to standardize, they set about to fix standards for preceptor training and required examinations for membership in the respective medical societies. Membership in the medical societies carried the privilege to practice, and in some states such organized bodies were authorized to grant the degree of medicine.

Because of the growing demand for doctors, groups of physicians in various centers secured legislative authority to conduct medical schools and confer degrees. Unfortunately, political and commercial influences, and occasionally personal ambitions, insidiously penetrated these endeavors, and, as a consequence, we have had in this country and Canada a total of approximately 460 medical schools. In 1800 there were only five schools, the Transylvania College at Lexington, Kentucky, being the only one west of the Alleghenies. In 1860 the number had increased to 66; during the Civil war 20 of these were closed, but by 1900 we had 160 schools in operation.

The schools endeavoring to maintain high standards and university principles and ideals, were greatly in the minority. Fortunately, in the early part of the 19th century ambitious young American physicians were attracted by the educational advantages in European universities. The pursuit of pure science in European laboratories and the rapidly developing modern methods of clinical investigation and

clinical teaching sent the science and art of medicine forward with a bound. Many of our young men in the profession of medicine, after one to three years in Europe, returned to this country to become leaders, not only in the practice of medicine, but in the teaching of medicine.

Outstanding among these were: Oliver Wendell Holmes, Elisha Bartlett, Benjamin Rush, William Shippen, John Morgan, William Pepper, Henry Pickering Bowditch, C. J. Gerhardt, Alfred Stille, William Power and Austin Flint.

From this time on we find rapid progress in the development of modern medicine, accompanied by a growing interest in the teaching of medicine. As a consequence our present standards of medical education have gradually evolved. The first national conference for the purpose of standardizing medical education was called in 1846. At the second meeting, in 1847, the name of the American Medical Association was adopted. In 1891 the Association of American Medical Colleges was organized. As early as 1892 Harvard Medical School required a course of four years; the Johns Hopkins Medical School, with similar standards, was founded in 1893; in 1899 a graded curriculum was adopted; in 1900 the American Medical Association gathered and published medical school statistics; in 1904 the Council on Medical Education was established by the American Medical Association. Since 1905 the members of this organization have assembled in annual conferences; the membership is composed of delegates from the various associations and universities interested in medical education.

Minimal standards of medical education were established. All medical schools in the United States were soon inspected and classified. In 1909, 100 medical educators and practitioners constituted a Committee on Medical Curriculum; however, it was the unanimous opinion that a uniform curriculum for all medical schools was not desirable and not in the best interest of medical education. Nevertheless, a suggestive curriculum was presented for the purpose of enabling medical colleges and state licensing boards to at least establish minimal standards. By 1900 approximately 28 medical schools were requiring two or more years of college work for admission, and 22 were requiring one year of college work following graduation from high school.

Thanks to the Carnegie Foundation for the advancement of teaching, Mr. Abraham Flexners' valuable report on medical education in the United States and Canada was made available in 1910. Through this commendable gesture valuable publicity resulted, and in many instances philanthropists were inspired to spend money for the advancement of medical education along university lines. The accepted standards received legal recognition in many states. These requirements, in turn, forced many lagging medical schools to meet the rising standards of medical education. As a consequence, the less worthy proprietary, or commercial schools, were forced to close their doors. In the United States we now have 76 medical schools with a minimal requirement of at least two years preliminary college work, some require three years and several demand a college degree for admission.

I have presented this brief survey of medical education in this country with the hope of securing a better understanding of present trends in medical education. The fundamental principles involved in modern medical education are as old as the history of medicine. William Osler, referring to the work of Hippocrates, the father of medicine, makes the following statement: "Everywhere one finds a strong, clear common sense which refuses to be entangled either in theological or philosophical speculations. What Socrates did for philosophy, Hippocrates may be said to have done for medicine. As Socrates devoted himself to ethics and the application of right thinking to good conduct, so Hippocrates insisted upon the practical nature of the art, and in placing his highest good in the benefit of the patient. Empiricism, experience, the collection of facts, the evidence of the senses, the avoidance of philosophical speculations, were the distinguishing features of Hippocratic medicine."

Not only did Hippocrates lay a secure foundation for the science of medicine, but he established for all time, within that science, the essential principles of moral and ethical conduct.

Gomperz, in his comprehensive work, "Greek Thinkers," refers to the Hippocratic oath as a monument of the highest rank in the history of civilization." May we, with pardonable pride, point to the fact that Gomperz, in the first volume of "Greek Thinkers," after discussing in Book 1 "The Beginnings," and in Book 2 "From Metaphysics to Positive Science,"

he designates Book 3 "The Age of Enlightenment," and chooses "The Physicians" as the title of his first chapter.

In discussing the supremacy of the Hellenic mind, Gomperz goes on to say: "We may trace the springs of Greek success achieved and maintained by the great men of Hellas on the field of scientific inquiry to a remarkable conjunction of natural gifts and conditions. There was the teeming wealth of constructive imagination united with the sleepless critical spirit which shrank from no test of audacity; there was the most powerful impulse to generalization coupled with the sharpest faculty for descrying and distinguishing the finest shades of phenomenal peculiarity; there was the religion of Hellas, which afforded complete satisfaction to the requirements of sentiment, and yet left the intelligence free to perform its destructive work; there were the political conditions of a number of rival centres of intellect, of a friction of forces, excluding the possibility of stagnation, and, finally, of an order of state and society strict enough to curb the excesses of 'children crying for the moon,' and elastic enough not to hamper the soaring flight of superior minds. At the point of development to which we have now attained, it was chiefly the critical faculty which advanced with great strides, and which stood in need of ever-new reinforcement. We have already made acquaintance with two of the sources from which the spirit of criticism derived its nourishment—the metaphysical and dialectical discussions practiced by the Eleatic philosophers, and the semi-historical method which was applied to the myths by Hecataeus and Herodotus. A third source is to be traced to the schools of the physicians. These aimed at eliminating the arbitrary elements from the view and knowledge of nature, the beginnings of which were bound up with it in a greater or less degree, though practically without exception and by the force of an inner necessity. A knowledge of medicine was destined to correct that defect, and we shall mark the growth of its most precious fruits in the increased power of observation and the counterpoise it offered to hasty generalizations, as well as in the confidence which learnt to reject untenable fictions, whether produced by luxuriant imagination or by *a priori* speculations, on the similar ground of self-reliant sense-perception."

So we find that out of the dead language of a great people comes the fascinating story of a living science. In the fifth century before Christ, the fundamental principles of modern medical education were clearly stated with a frank intellectualism and an insatiate yearning for truth. Medicine had thrown off the veil of mystery and was ready to submit every problem to the law of reason. Aristotle accepted the straightforward methods of clinical observation laid down by Hippocrates and added the fundamental principles of scientific investigation. All modern educational accomplishments are based upon these fundamental principles, though at times they are almost lost in the bewildering growth of physical equipment. We find them running through all departments of the medical school, dominating every advance in medical knowledge. In the following brief quotation, President Elliot has merely restated the above principles: "The problem is to get students to weigh evidence, draw accurate inferences, make fair comparisons, invent solutions, and form judgments; this is the serious problem in all education of efficiency."

Having set forth the fact that medical education in this country is now carried on in standardized medical schools, many of which are integral parts of state universities, and having referred to the fundamental principles and methods of medical education, we are now ready to consider briefly present trends in medical education.

Though we strive to choose only those who are spiritually, temperamentally, morally, and intellectually qualified for admission to our medical schools, we are often quite conscious of our limitations, and each year the mortality in our freshman classes proves that our methods are imperfect. This consciousness of our inability to adequately appraise the students' fitness for the study of medicine, has led to the wholesale application of the aptitude test. Even this has failed to satisfactorily supplement our standard methods. At any rate, the present trend is toward more careful selection with a continued search for more effective methods of appraisal. On account of the increasing number of applications, and the over-supply of physicians, many schools are attempting to cut down the number of admissions. Aside from the vital question of supply and demand, it is desirable, from an educational standpoint, to avoid over-crowding and over-taxing the physical facilities of a given medical school.

The present trend in the *preclinical* de-

partments is toward more careful cooperation with the *clinical* departments, in order that thought may be translated into action, and that anatomy, physiology, biochemistry, pathology, histology, and bacteriology may be definitely identified with the human organism in health and disease. Research in the preclinical departments should be encouraged. The teaching and the organization of the work in the department should be such as to inspire action and to stimulate original investigation.

The student of medicine should be burdened only with applied knowledge, or knowledge subject to practical application. Emerson has said: "The office of the scholar is to * * * guide men by showing them facts amidst appearances." Claude Bernard beautifully expressed the same thought as follows: "Yet we shall reach really fruitful and luminous generalizations about vital phenomena only in so far as we ourselves experiment, and, in hospitals, amphitheatres, or laboratories, stir the fetid or throbbing ground of life." Again, he says: "If a comparison were required to express my idea of the science of life, I should say that it is a superb and dazzling lighted hall which may be reached only by passing through a long and ghastly kitchen."

In the clinical departments we are stressing the need of bedside instruction under the guidance of carefully chosen teachers whose function it is to take students in small groups and direct them in the intricate, yet fruitful, methods of clinical investigation, diagnosis, and rational therapy. This is not a new method, as the following will attest. In 1664 Franciscus Sylvius gave the following account of his clinical methods:

"I have led my pupils by the hand to medical practice, using a method unknown to Leyden, or perhaps elsewhere, i. e., taking them daily to visit the sick at the public hospital. There I have put the symptoms of disease before their eyes; have let them hear the complaints of the patients, and have asked them their opinions as to the causes and rational treatment of each case, and the reasons for those opinions. Then I have given my own judgment on every point. Together with me they have seen the happy results of treatment when God has granted to our cases a restoration of health; or they have assisted in examining the body when a patient has paid the inevitable tribute to death."

With the necessary increasing tendency toward specialization in medicine, and the multiplicity of mechanical aids and laboratory tests in connection with diagnosis and the highly technical methods of treatment, the study of disease at the bedside is very apt to be neglected by the average medical student unless something is done to fix his attention on clinical medicine.

We insist that laboratory work should follow, and not precede, thorough history taking and a searching physical examination. Otherwise, laboratory procedures cannot be intelligently employed and properly interpreted. We also demand that the art of medicine should not be overlooked. With the passing of the preceptor plan, the cause of medical education suffered a great loss. The above methods of instruction, plus the clinical clerkship plan, represent efforts to compensate this loss. We are trying not only to preserve that phase of the plan having to do with bedside observation, but also that delicate intangible human phase which means so much to the patient.

In spite of the revolutionary influence of a mechanistic age, human nature remains the same, ultimate human needs are no less genuine than they were in the days of long ago. The patient still needs a physician who is willing to sit at the bedside and bring to bear a sympathetic, intelligent, application of medical knowledge to the patient's individual problems; a physician who realizes that the human organism is still intact, constituting an integral part of society, possessing a human personality, and having the right to demand consideration as a composite whole.

Pursuing this policy, we have discarded many of the didactic lectures, especially those which gave the student only what he could find in the textbooks. Likewise we have discontinued many of the surgical clinics and the large amphitheatre medical clinics. The surgical clinics are replaced by bedside studies in surgical diagnosis and surgical aftercare. Special emphasis is being placed upon the teaching of preventive medicine and the necessity of creating a sense of responsibility with reference to public health, hygiene, and social welfare.

With an ever-widening field to cultivate, we insist upon teaching only the fundamental principles and methods necessary to make good doctors of medicine; general practitioners adequately qualified to take care of the 80 per cent suffering from

the common ills of humanity and equally capable of intelligently referring the remaining 20 per cent who may be in need of highly specialized care.

Undergraduate medical education is not designed for the purpose of turning out specialists in any line. The present trend is toward the establishment of minimal educational standards for the various specialties which must be satisfied through experience and graduate work before recognition is granted. In all departments of the schools offering undergraduate medical education, we are stressing the importance of personal contact between teacher and student; of daily, or at least consecutive, period estimates of the character and quality of the student's work, and corrective efforts where defects are noted. As a result, we are materially reducing the number of final examinations. All this, with a view of awakening latent ambitions, encouraging initiative, stimulating investigative and creative tendencies, bringing to a high level the common power of accomplishment, and perhaps occasionally discovering genius.

We are trying not to shackle the vehicles of thought with the heavy harness of fixed routine, not to enslave the mind through the demands of inviolate systems which tend to smother originality. It is gratifying to note that present trends in medical education are placing emphasis upon cultural values. The history of medicine is commanding an ever increasing interest and supplying not only incentive and inspiration, but proving a powerful antidote to dogmatism and self-complacency. Finally, when we consider the responsibility of dealing with the intricate functions of the human mind and body, in health and disease; played upon by all the intangible hereditary factors and influenced by an ever-changing environment constantly increasing in its complexity, we feel that the doctor should learn, "above all, to walk gently in a world where the lights are dim and the very stars wander."

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TREATMENT OF LIVER DISEASES*

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It is quite obvious to everyone that the treatment of hepatic disease today remains in a very unsatisfactory state. The more recent accumulation of information regarding liver physiology has helped us to a better understanding of liver disease but for some reason our therapeutics have not kept pace with this knowledge. Liver function tests of today are only of limited value because the different functional tests are limited to one particular function and the actual functions of the liver are numerous.

This is further complicated by the fact that the liver, like the kidney, is an organ of very considerable reserve power; that it is capable of carrying on the necessary physiological function without appreciable or detectable changes. When enough is destroyed to produce detectable changes either by clinical or laboratory methods it is practically too late to obtain an appreciable beneficial therapeutic influence by any measure known in our present therapeutic armamentarium.

It is easy to understand why death should occur in acute yellow atrophy, but what of the cases that go into subacute stage? Will cirrhosis ultimately be the outcome? What about the case with focal necrosis of liver substance? What about the cases that develop acute hepatitis and then apparently recover completely? In all of these cases with definite liver cell degeneration or focal necrosis it is conceivable that a certain number will show repair and absorption of necrotic areas with fibrosis that ultimately might lead to occlusion of the vascular or biliary tract and thus produce cirrhosis.

When, however, the stage of cirrhosis has been reached our therapeutic efforts are so futile that we can only treat the case symptomatically. It becomes necessary,

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therefore, for us to direct our main therapeutic efforts toward prophylactic and hygienic measures for the prevention of severe liver damage.

The liver is susceptible to injury from infections and certain toxic substances; among the latter may be mentioned such chemical substances as phosphorus, chloroform, phen-hydrazine, trinitrotoluene, trichlorethane, carbon tetrachloride, cinchophen, dinitrophenol, etc. There is sufficient evidence at hand to severely condem the use of a substance such as cinchophen or other quinoline derivative (a preparation in common use is atophan). Not alone is their prolonged use potentially dangerous, but it has been known to produce fatal liver damage when taken over relatively short periods of time. The more recent introduction of dinitrophenol for reduction cures by its effect on metabolism has added another dangerous drug as the accumulating reports of disastrous fatal results finds its way into medical literature.

Arsphenamine jaundice, while not frequent, is sufficiently important to warn the physician to be on guard as to the toxic effect of arsenic on the liver in some cases. The frequency of alcohol as the common etiological factor in portal cirrhosis has probably been considerably over-estimated in the past, yet clinical experience over many years indicates a definite relationship in a great many cases.

Certain infections may produce acute hepatitis or liver damage which may go on to permanent injury. Among these acute infections may be mentioned malaria, scarlet fever, septicemia, pyemia or chronic suppuration, eclampsia or the toxemia of pregnancy. Typhoid fever and certain other infections have been known to cause localized necrosis of the liver. Foci of infection in the biliary tract or appendix may produce damage to liver substance.

Suffice it to say that the very reason that damage to the liver may conceivably occur from many sources makes it difficult for the clinician to segregate those cases of actual early liver damage that may ultimately lead to liver cirrhosis or at least hepatic insufficiency. This may be of considerable importance to such a patient because in later life he may develop some serious illness which will tax his various organs to the utmost. Should a damaged liver be present it might materially influence the outcome of his illness. However, we are drifting in the realm of the speculative and had better stick to known facts.

From a general hygienic and dietary standpoint in treatment of liver disease it should be remembered that high sugar and high carbohydrate food intake is indicated. This improves the nutrition and resistance of the liver cells, according to Whipple's experimental work. Whether the protein should be restricted, is a question; some experiments seem to indicate a definite relationship between protein metabolism and the liver.

In those cases of liver disease with obstructive jaundice the normal emulsification of fats by the acids does not take place when bile is absent from the intestines, hence fats are poorly tolerated by these patients.

Functional disturbances of the liver without definite pathologic changes in liver cells may occur but the so-called "bilious" attacks are probably more a result of intestinal absorption and need not concern us here. Acute catarrhal jaundice is a self-limited disease and one merely needs to guide the patient through his illness by directing his diet and other simple measures. The important thing is to be correct in our diagnosis of a supposed case of acute catarrhal jaundice. The few cases of acute catarrhal jaundice that may occasionally go on to acute yellow atrophy and death are probably improperly diagnosed.

Syphilitic disease of the liver may occur in the secondary stage of syphilitic infection or in chronic or tertiary stage. When it occurs in secondary stage it usually manifests itself by a definitely palpable liver with sudden jaundice. The tertiary stage may occur as a diffuse fibrosis or as a gummatous lesion with cicatrices, with or without some jaundice. In either case we must remember that there has been extensive damage to the liver cells and the immediate use of arsenic in forms of arsphenamine or other preparations arsenical is not advisable; not only that, but such a diffuse syphilitic hepatitis may develop into an irremedial liver cirrhosis. Most authorities believe that we should begin the treatment by potassium iodides by mouth, and mercury by inunction, over several months time. This allows replacement fibrosis to occur more slowly and give more time for the development of collateral circulation. Some even go so far as to avoid using mercury by inunction

for several months and use only a combination of mercury and iodides by mouth.

Later, when the liver edge has receded considerable mercury by inunction is started. Still later, or after several months, various arsenical preparations may be cautiously started.

We shall not attempt to deal with the medical or non-surgical treatment of disease of bile passage, but we all know that when a jaundiced patient needs to be operated the jaundice adds considerable to the risk of the operation.

There is a distinct susceptibility in all obstructive jaundiced patients to bleeding or oozing after an operation. The exact cause of this tendency to bleeding is not well understood, but several theories have been postulated. It is natural to think that a deficiency of one of the clotting elements is at fault or produces this abnormal mechanism of coagulation, but each theory postulated has been practically abandoned,

One of these—the calcium theory—was strongly advocated, but this also has not proven tenable. Repeated analysis has shown that the total and available serum calcium of jaundiced subjects usually falls within normal limits.

Recent reports by Carr and Foot, and Mueller, Sturgis and Sommers, call our attention to the possible relation of amino acid-cysteine to this abnormal or impaired clotting. Preliminary studies demonstrated that the addition of minute amounts of cysteine to normal blood shortened the coagulation time and changed the clot to a large friable, non-retractile mass closely resembling that formed by the blood of jaundiced human subjects. It would seem, therefore, that cysteine, or perhaps some related mercaptan, is intimately related to clottings in obstructive jaundiced patients. While they have investigated with some drugs, usually brombenzene, it must be recognized that brombenzene is a rather toxic drug. The brombenzene combines with cysteine to form bromphenyl-mercapturic acid, excreted in urine. An editorial in A. M. A. of September 29th suggests to us that while the use of this drug is still in experimental stage it should be remembered that protein is the metabolic precursor of cysteine and related mercaptans and therefore might well be avoided or cut down to a minimum in the diet of patients with obstructive jaundice.

The use of calcium chloride, more especially calcium gluconate for three days, preoperatively, may not be on sound therapeutic basis but cannot be entirely ignored for the present. In our hands a small transfusion or repeated small transfusions has given the best consistent results. It should be used early and frequently, if necessary. A preoperative transfusion has been used in some cases where conditions seem to have warranted its use.

The jaundiced patient, whether from obstructive jaundice or biliary cirrhosis, frequently complains bitterly of the persistent itching or pruritis which so often accompanies the jaundice. It interferes very materially with his rest and sleep and he greatly welcomes any relief from this annoying symptom. The usual measures used for its inhibition are generally unsuccessful. If these ordinary measures for its relief are unsuccessful, one might try calomel as recommended by Eppinger. The calomel is given in one-fourth to one-half grain dosage every half hour until one to two grains have been given. Such a course may be given daily for three or four days per week.

Hemorrhage from esophageal varices due to cirrhosis usually occurs after the patient has developed ascites and the diagnosis of cirrhosis is fairly certain. It must be remembered that they may occur, however, at times months or even years before acites appears. Medical treatment has no cure to offer for the recurrence of this condition, but it may be that in time to come it will be found to lend itself to some surgical procedure.

The other much more serious although not so common is the danger of death from "so-called" liver insufficiency. It is conceded, I think, by most clinicians that damage to the liver is often extensive and very severe in these cases of obstructive jaundice.

Two types of toxemia may follow operative procedure for obstructive jaundice. In the first type the secretion of bile and urine is diminished with resulting increase in blood urea and bilirubin. The other manifests itself by a very profuse flow of bile with subsequent dehydration, exhaustion and collapse. It therefore becomes necessary to see that the patient gets an abundance of water and also glucose. The method of administration and amounts depending on the individual case.

The presence of ascites in cirrhosis of the liver is the thing which brings most of these cases to the physician for the

first time. In the past the only therapeutic effort of any consequence, so far as definite results were concerned, was paracentesis. Efforts, of course, had been made since ancient times to get rid of the fluid by medical means. It was not, however, until the modern combination of mercury of ammonium salts that "medical tapping" by this means was successfully practiced. The first really successful mercurial preparation used was the organic mercurial diuretic merbaphen or novarsurol, introduced by Paul Saxl, Robert Heilig, in 1920.

The patient is given ammonium by mouth in good sized doses and the mercurial preparation novarsurol, or the still newer preparation Salyrgan. This mercural preparation may be given either deep intramuscularly or intravenously. The dosage is 1 cc. for the first injection and the preference is for intravenous injection. After the first dose 2 cc. are given and repeat at intervals of 3 to 5 days. The diet should enforce some fluid restriction —800 to 1000 cc.—and low in basic ions, particularly sodium.

This treatment will produce effective diuresis in at least 75 per cent of cases if persistent and will serve to keep the ascites under control in most cases. Even should one tapping become necessary at the beginning of treatment it should be persisted in for some weeks as the treatment may become much more effective than the first two weeks of treatment might indicate. Toxic effects are not likely to occur from the mercurial Salyrgan unless there is evidence of considerable kidney damage, when of course it would be contra-indicated.

If fair results are obtained by the above methods they should be continued so long as effective diuresis continues. Sooner or later a gradual diminution in response to treatment occurs. This is of grave prognostic significance and usually indicates the approach of terminal hepatic toxemia.

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A GENERAL CONSIDERATION OF ACUTE INTESTINAL OBSTRUCTION*

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Intestinal obstruction or ileus occurs when, for any reason, there is a stoppage of the intestinal content past any given point. The condition, if unrelieved, is invariably fatal. If the obstruction be incomplete or temporary, spontaneous relief and recovery should occur. Certainly, however, in cases of complete mechanical obstruction, no such outcome can be expected. Under such conditions, the patient's life is at stake. Recovery depends upon prompt and proper treatment.

For these reasons this subject is always worthy of attention from medical men. It is true, no doubt, that the condition is primarily a surgical complication. Nevertheless the general practitioner or the internist is often the one who controls the destiny of the patient. Very often it is he who sees bowel obstruction in its early stages when it is most amenable to treatment. The diagnosis is not always easy. The condition is not an everyday occurrence in the practice of the average physician. In fact, it is just sufficiently rare that he hesitates often to believe his own fears about the case, and often permits himself to proceed with a regime of watchful waiting, a plan which we must admit is often necessary in affairs medical.

When, however, the physician understands the management of a patient who is developing a bowel obstruction, he assumes a very grave responsibility and he finds himself faced with many difficulties. The onset of bowel obstruction is not always dramatic; it is often insidious so that a serious condition exists before the true state of affairs is recognized.

Then suddenly it occurs to all concerned that something must be done at once, and the unfortunate patient is rushed into the

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surgery for an emergency operation. This is wrong.

Though there is yet much to be learned about the subject of bowel obstruction, and although much of the vast experimental work has seemed to be of little fundamental importance, nevertheless our practical knowledge of the subject has been vastly increased in the past few years. It is the purpose of this paper to emphasize chiefly these more or less recent additions to our knowledge.

PATHOLOGY OF BOWEL OBSTRUCTION

A complete discussion of the pathological changes which may be associated with bowel obstruction would be didactic, laborious and beside the point. For years, both clinical and experimental observers have pondered the cause of death, assuming it to be a specific toxemia. At the present time it seems quite apparent that there is no one single cause of death in acute intestinal obstruction. From this point of view, regardless of etiology, we must consider two types of bowel obstruction: (1) Simple obstruction; (2) Strangulation of the bowel[1].

In simple obstruction there is merely a failure of the intestinal current to pass on. The intestinal wall is undamaged and its circulation is intact. Under these conditions all observers agree that there is no absorption of toxins sufficient to cause death. There is, however, a definite metabolic disturbance, characterized by dehydration and a loss of chlorides from the blood in addition to other blood chemical changes[2]. These changes are due solely to the fact that the gastric and upper intestinal secretions are prevented from reaching the colon where water and inorganic salts normally are reabsorbed. These changes alone may be fatal. However, they can be combated quite successfully by purely medical means, namely, the intravenous administration of normal salt solution in large quantities. To this may well be added glucose and Hartman's solution which supplies other electrolytes and buffer substances in addition to the chlorides.

In other words, though a simple obstruction of the bowel may require surgical intervention for its permanent cure, it is not a surgical emergency and is far better managed by a conservative plan of treatment to be outlined later.

Strangulation of the bowel is a condition in which the obstruction is complicated by impairment to the circulation of the intestine. The involvement may be partial or complete, sudden or insidious. In view of the fact that gaseous distention alone is capable of producing a condition of strangulation, it is apparent that practically any obstruction occurring below the duodenum sooner or later becomes complicated by this over-distention unless the pressure is in some way relieved. In this condition of obstruction plus over-distention or strangulation the patient not only suffers the metabolic disturbances already described but in addition must combat far more serious pathological changes. Frankly, these are not entirely understood. It is assumed that under conditions of strangulation and over-distention of the bowel, toxins are absorbed into the blood stream. Concerning this point, however, there is much interesting controversy. It is generally assumed that the normal content of the intestine is relatively non-toxic and becomes toxic only after and as the result of an obstruction. This is a fallacy. Recently we[3] have shown that the normal content of the intestine is usually more toxic than the material removed from an obstructed bowel. This toxic property of normal intestinal content is due chiefly to the combined secretions of the pancreas and duodenum. When compared to this material, the contents of an obstructed loop of bowel are relatively inocuous unless the loop actually receives and retains this toxic pancreatico duodenal secretion. It is difficult to believe that the stagnant, foul-smelling content of the obstructed bowel should be actually less toxic than normal intestinal content. This is nevertheless true. The question arises how to explain this lessened toxicity! It is possible to assume that this observation lends weight to the view that toxic substances are present normally in the intestine and are absorbed under conditions of obstruction. Of this we have no proof.

In our studies we have been unable to demonstrate in any fashion the actual absorption of toxins from an obstructed bowel until necrosis or gangrene occurs. In such a situation the absorption obviously must be transperitoneal for the most part. Blood and lymphatic drainage has been cut off by the strangulation. Under these conditions the toxins absorbed are far less important than the hazard of generalized peritonitis from a gangrenous or perforated intestine.

It is true that patients and also experimental animals will die of obstruction in the absence of peritonitis or the other ap-

parent factors I have mentioned. Therefore it is no doubt true that the last word has not yet been written concerning the toxemia of bowel obstruction. We find, however, that none of these obscure factors in the causation of death are encountered so long as over-distention of the bowel is prevented. In other words, it seems that the greatest single menace encountered in a case of acute intestinal obstruction is the damage resulting from over-distention of the intestine.

MANAGEMENT OF THE PATIENT

The question naturally arises—how does the foregoing discussion benefit the patient in any practical manner? Though a complete answer cannot be given in a few words, it is nevertheless true that the hazard of bowel obstruction is reduced to a minimum by a plan of treatment based upon the principles outlined above. Before entering upon this discussion, however, we should consider briefly a few salient points concerning etiology, symptomatology and diagnosis.

Etiology: The factors which enter into causation of bowel obstruction are in general too well known to warrant detailed discussion here. In a patient whose abdomen shows the scar of a previous operation the most likely cause of an obstruction is adhesive bands which either constrict or kink the gut. In a patient past middle age with no other apparent cause for obstruction, malignancy of the colon should be the first thought. Other purely mechanical causes are herniation, either external or internal, volvulus, cicatrix from ulceration, intussusception which most commonly occurs in children, and foreign bodies such as gall stones, enteroliths and swallowed articles. I wish especially to emphasize the fact that acute inflammation such as localized peritonitis or abscess may often cause bowel obstruction which is essentially mechanical in type. Of this more will be said later.

Paralytic or adymanic ileus may be either neurogenic, toxic, infectious, or circulatory in origin and may be due to spinal cord lesions, abdominal trauma, renal colic, pneumonia, generalized peritonitis or mesenteric thrombosis. Obviously this type of ileus may be of minor consequence or of fatal significance depending upon the gravity of the underlying pathology.

Ileus of dynamic or spastic type should be mentioned. Lead poisoning appears to be the chief cause.

Symptomatology: The symptoms of bowel obstruction are somewhat variable depending upon the etiology, the suddenness of the obstruction, the portion of the intestine involved, the extent to which blood supply is strangulated and the degree of parietal peritoneal irritation. Admitting these variables, there are four cardinal symptoms which are definite and significant. These are abdominal pain, vomiting, abdominal distention and obstipation. It is obvious, however, that the symptoms will vary in intensity and no one of them of itself is diagnostic.

The pain is extremely variable and at the outset varies in degree from mild to most excruciating, depending chiefly upon the suddenness of onset. It is apt to be paroxysmal due to hyper-peristalsis. If there is strangulation or marked peritoneal irritation, there is extreme abdominal tenderness but this likewise is variable.

Nausea and vomiting is a symptom so frequently observed in disease as to occasion little concern in most instances. When, however, it is associated with abdominal pain as discussed above, it cannot be disregarded; and certainly no one will deny that incessant vomiting, finally becoming fecal, is of itself pathognomonic of obstruction. I hasten to add, however, that fecal vomiting should be considered a late sign and a testimonial to the fact that diagnosis and treatment have been postponed too long.

The third cardinal sign, abdominal distention, is also one which cannot be ignored. In typical cases the distention grows progressively more pronounced, and ladder patterns of the distended bowel loops may be seen, but this picture most certainly is subject to marked variations, and difficulties of interpretation depending upon the abdominal muscle power, degree of obesity, the management the case is receiving, and other factors. In cases of high obstruction the abdomen may be tense but never greatly distended. In the low obstructions, distention usually becomes very great, especially when intake of fluids and food or medication is continued by mouth.

The obstipation of complete acute intestinal obstruction occurs obviously because the intestinal content cannot pass the point of obstruction. This, however, does not necessarily prevent one or more stools coming from below the obstruction. Furthermore, obstipation occurs in many abdominal conditions other than obstruction.

Finally, though all of these cardinal symptoms are variable, and though no one of the four can be taken as diagnostic without considerable qualification, it is nevertheless true that each is an important part of a composite picture, the significance of which should be comprehended without delay.

Diagnosis: The diagnosis of bowel obstruction begins primarily with the syndrome just described.

In the physical examination of such a patient much valuable information is gained by auscultation of the abdomen. In mechanical obstruction, violent borborygmi will be heard. In a patient with a distended abdomen and the other symptoms of ileus, these peristoltic sounds give a distinct note of encouragement. The distended silent abdomen of generalized peritonitis is a forecast of doom. The same picture will often be encountered in the moribund stages of any bowel obstruction.

A valuable aid in the early diagnosis of an obstruction is to be found in the intelligent use of the x-ray. The barium meal obviously is contraindicated. It is distinctly dangerous to the patient and gives only misleading information. The barium enema, however, is of great value and is quite successfully diagnostic for obstruction below the caecum.

A flat x-ray plate of the abdomen gives far more information concerning obstruction than is generally recognized. Distended loops of bowel with fluid levels give evidence of ileus, and the distribution of gas is also significant. If, for instance, no gas is seen in the colon and over-distended loops of small intestine are observed, the picture may be taken as indicative of ileus.

In view of the well recognized difficulties of positive diagnosis, it is only logical that any patient with symptoms causing reasonable suspicion of ileus should receive treatment accordingly.

Treatment: While it is true that radical surgical intervention may be the best treatment in many cases of bowel obstruction, it is by no means true in all cases. In any event the mere statement that acute intestinal obstruction is a surgical emergency is of little practical value. Many times a direct surgical attack upon the actual cause of the obstruction is the worst form of treatment. Certainly this is true in cases of obstruction occurring as a postoperative complication.

Here the obstruction is either inflammatory or adhesive in origin. Here especially we are correct in stating that the real menace to the patient is the over-distention of the bowel. If this be prevented or relieved, the obstruction can and should for a time be ignored. It is necessary only to supply the metabolic needs of the patient by intravenous fluid therapy. In many instances when the bowel is decompressed, the inflammatory or adhesive types of obstruction are relieved spontaneously in a few days' time.

This indirect decompresion of the distended bowel may be accomplished by means of an enterostomy under local anesthesia, the enterostomy tube or catheter anchored in bowel above the obstruction after the method of Witzel. The enterostomy heals spontaneously after the tube has been removed following the relief of the obstruction.

Recently an even more simple method of upper intestinal decompression has come into favor. I refer to suction-siphon drainage by means of a duodenal tube installed through the nose. Wangensteen[1] has given a complete discussion of this method. Details of its application are discussed with the accompanying diagram.

FIGURE 1

Figure 1 shows the apparatus as described by Wangensteen and Paine.[4] The suction siphon action will continue indefinitely as long as a fluid level is maintained in the upper bottle When this fluid is entirely replaced by gas from the bowel the siphonage will cease until the bottle is refilled.

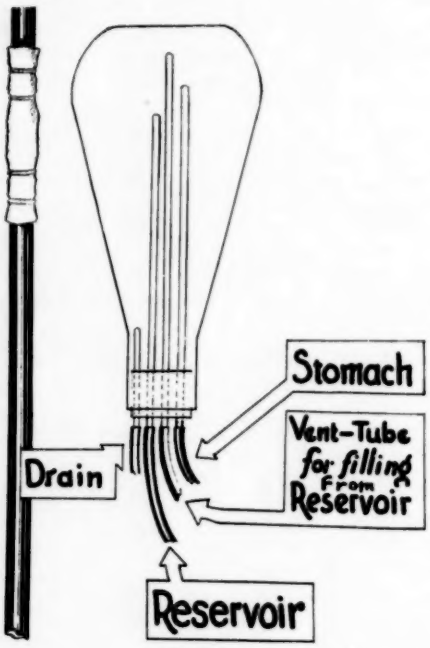

FIGURE 2

Figure 2 shows a modification of the apparatus as devised by Dr. Horace Banks of Indianapolis and recently discussed by Dr. Murray Hadley in a report which is as yet unpublished. In this, the stopper of the upper bottle is fitted with two additional tubes. One of these leads to a reservoir which permits filling of the upper bottle without removing the stopper. The other additional tube is necessary to provide a vent through which the air in the bottle escapes as the fluid is added from the upper reservoir. These two additional tubes are clamped shut while the syphon is in operation.

Figure 3 shows details of the upper bottle. The duodenal tube requires occasional washing with a syringe in order to remove mucous from the openings at the tip. The Levin tube is recommended. It has a catheter tip with several perforations.

Minor technical difficulties in the working of the apparatus will easily be overcome by experience.

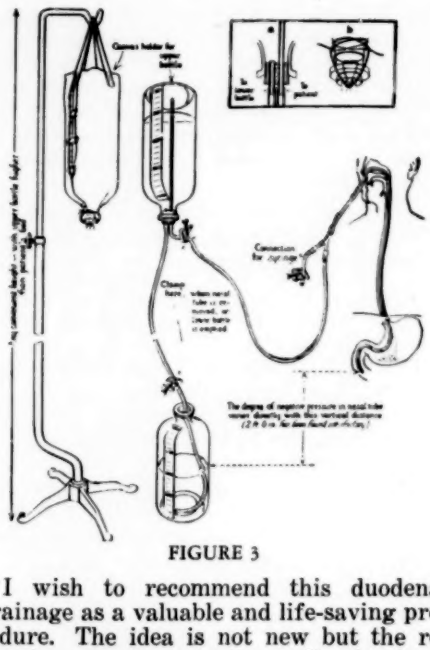

FIGURE 3

I wish to recommend this duodenal drainage as a valuable and life-saving procedure. The idea is not new but the recent improvements in its application have greatly increased its effectiveness. The simple apparatus with the continuous gentle suction-siphon action greatly facilitates the removal of both fluid and gas first from the stomach and upper intestine, finally in most instances effecting a satisfactory decompression of the entire obstructed bowel. When this is accomplished the obstruction is in many cases converted into the simple type. The danger to the patient's life is reduced to a minimum and the surgical emergency of bowel obstruction with its well known hazard no longer exists.

It is true that in some instances a local area of the bowel may be undergoing gangrene from complete strangulation which cannot be relieved by the decompression. These obviously require direct surgical attack.

Admitting that the procedure and management of any given case is an individual matter, it is nevertheless true that the conservative plan of treatment will many times save a life which would be lost by major surgery.

As previously indicated, this decompression treatment is especially indicated in the post-operative obstruction as encountered typically in peritonitis from ruptured appendix. It is equally effective in most adhesive types of obstruction. Though

it is incorrect to consider duodenal tube as equal to enterostomy in all cases, there are many enthusiastic reports of its value. Finally it offers a splendid method of protecting the patient in whom ileus is suspected but not acutely certain.

If, after a reasonable trial, it becomes apparent that distention is not being relieved by the duodenal tube, an enterostomy should be performed, or if the patient's condition will permit, an exploratory operation.

GENERAL SUMMARY

In the light of our present knowledge it becomes apparent that intestinal obstruction is not a surgical emergency except in cases known to be complicated by strangulation. In most instances the prognosis is much improved by preliminary decompression of the obstructive bowel and a period of conservative treatment as outlined above. In many instances the immediate danger of bowel obstruction is removed when over-distention of the intestine is prevented or relieved. In all cases, however, the problem is a serious one requiring skilful management in order to avoid a fatal termination.

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THE PHYSIOLOGY OF THE ENDOCRINE GLANDS*

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The development of the subject of endocrinology has at last put this enigmatical branch of medicine upon a scientific basis. No other field of medicine has made greater progress during the past twenty-five years. Problems in diagnosis have been extremely difficult to solve, the literature has been flooded with a tremendous volume of conflicting work, the market has been deluged with glandular products of every description, exploiting this new branch of medicine. The scepticism of careful, cautious physicians has been fully justified because endocrine therapy has, in the past, been tried and found wanting. The medical profession continues to be exploited by some pharmaceutical houses which market a great many useless, inert, irrational polyglandular concoctions which are commonly prescribed, even by physicians who in other subjects practice the best of scientific medicine. Until endocrine diagnosis by the medical profession as a whole becomes more exact and on a more rational, scientific footing and less subject to impressionistic speculation results will necessarily be poor. In no other phase of practice is physiology so important as in the practice of endocrinology.

It is my purpose to review briefly the physiology of the endocrine glands, for upon a full understanding of the glandular function will clinical endocrinology be successful. An attempt will be made to present in concise form the more important known facts from the maze of current literature in the hope that it will stimulate the practitioner to study the all-powerful, all-important endocrine glands upon whose function our entire mental and physical development depends.

Progress in the study of glands of internal secretion has been due chiefly to American scientists. Comparatively few important developments have been made by European workers. Such investigators as Evans, Cushing, Smith, Collip, Banting, Best, Frank, Corner, Crile, Allen, Bailey, Dandy, Reichert, Davidoff, Swingle, En-

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gle, Kendall, Fluhmann, Rogoff, Stewart, Allen, Doisy, Kamm, Hartmann and a host of others have labored tirelessly and the fruits of their efforts are known to all. The tremendous importance of the hormones on somatic growth and development, the immunity mechanism, sexual development, reproduction and psychic phenomena are forcing us to change radically our fundamental concepts of disease and its processes.

THYROID

The function of the thyroid is the least understood of all the endocrine glands. Kendall published his first paper dealing with the isolation of an active thyroid hormone in 1915. A few years later he identified this substance chemically and gave it the name thyroxin. While other hormones of the thyroid have been suggested, from our present knowledge thyroxin is the only known endocrine principle. Many experiments leading to its discovery cannot be mentioned for lack of space. As early as 1895, Kocher suggested the presence of iodine in the gland, this being subsequently verified by Baumann and others. This active principle is elaborated by the acinar cells and stored in colloid form. One milligram given intravenously in animal or human increases the metabolic rate about 2.8 per cent. The action of this hormone is that of a catalist in that it has been shown to activate the entire animal organism directly or indirectly. An excess of the hormone produces a clinical picture of thyrotoxicosis, while a deficiency produces the syndromes of myxedema and cretinism. Without its presence, mental, somatic and sexual development are retarded. The skin becomes thick, the nails brittle, the hair is coarse and falls out. The clinical findings of cretinism and myxedema, with general depression of all bodily activities, are well known. Thyroidal obesity is characterized by a gradual increase in weight with myxomatous infiltration of the subcutaneous tissue, accompanied by some or all of the symptoms of hypothyroidism and myxedema. The fat is distributed rather evenly over the entire body in contrast to the Frohlich type which is essentially a pelvic and pectoral girdle adiposity. Associated symptoms may be fatigue, slight deafness, somnolence, lack of energy, constipation, digestive disturbances, mental sluggishness, depressed sexual functions and albuminuria. The basal metabolism may be normal, but is usually definitely decreased. The majority of mild hypothyroidisms are not accompanied by obesity; in fact, these patients are often decidedly underweight. Associated disorders of the sexual and gestational cycles may be directly related to an inadequate supply of thyroid secretion. There is a definite lowering of resistance to infection, the mechanism of which is probably a reduction in complement. Longstanding thyroid deficiency inevitably results in hypo-functions of other glands as well as depression of all somatic functions. Experimental hypo and hyper-thyroidism are readily produced by thyroidectomy and thyroid substitution therapy, respectively. Recently Anderson and Marine have produced the first experimental exophthalmos by injection of the so-called thyrotropic hormone from the anterior lobe of the hypophysis.

HYPOPHYSIS

Ablation of the hypophysis invariably leads to an abnormal development. Although complete hypophysectomy is compatible with life, hypophysectomized animals develop a severe cachexia and die long before the normal span of life has passed. In adult animals early genital regression is followed by a state of debility designated as cachexia hypophysiopriva which in adults has its counterpart as Simmons' disease, or pituitary cachexia. In young animals the earliest and most striking changes are the cessation of growth and development. Ablation of the anterior lobe, when complete, results in immediate cessation of growth. Infantile characteristics persist and in the human we have the Lorrain-Levi dwarf, characterized physically by retention of the milk dentition, the fine lanugo hair growth and open epiphyseal cartilages. Physical growth and development stop, the epiphyseal cartilages shrink, and blood calcium levels become lower, probably as a result of parathyroid insufficiency. Replacement of the growth hormone is followed by growth and development to normal or even a stature in excess of normal. In experimental animals gigantism has been produced by Evans and his co-workers, and by Putnam, Benedict and Teel in Cushing's Laboratory. Potent extracts of the growth hormone were first produced by Evans and Long and are now prepared in relatively pure form. Replacement therapy in the human has been reported by Engelbach and others with satisfactory resumption of growth and development. While as yet

in the experimental stage, successful growth increment may be anticipated.

The pituitary sex hormone or hormones elaborated by the basophilic cells of the anterior pituitary are essential to growth and development of the genital system. Its absence results in testicular or ovarian under-development while ablation is followed by regression in size of the gonads, atrophy of the tubules, and accessory organs (Cowper's glands, uterus, tubes, prostate, seminal vesicles) with lack of germ cell production. Secondary sex characteristics fail to develop (axillary and pubic hair, breast and bust development in the female) without the presence of the female sex hormones, and sex interest and desire are not manifested. Substitution of the pituitary sex hormone or hypophyseal tissue after hypophyseal ablation results in stimulation of the sex organs with development of all sex characteristics. Ascheim and Zondek in Germany and Smith in America, working independently, discovered the gonad stimulating properties of anterior pituitary transplants. In 1927 Ascheim and Zondek discovered large amounts of the gonad stimulating hormone in the urine of pregnant women which they termed prolan. Since this time, it has been encountered in large amounts in the blood and urine of pregnancy and in the placenta, which discovery has enabled us to make an early diagnosis of pregnancy, heretofore impossible. The ovarian and female sex hormones in the urine of pregnancy may readily be separated and supplies from this source furnish the commercial products. This pituitary sex hormone from urine, prolan, is not the sex hormone of the anterior hypophysis. Collip and Phillip believe that it is elaborated by the placenta and chorionic villi, others that these tissues store the hormone which the enlarged and stimulated hypophysis produces. Evans and his co-workers are convinced of the hypophyseal origin of prolan. They have shown that prolan, while gonadotropic, differs from the true gonadotropic substance found in the hypophysis itself. During pregnancy great amounts of estrin and prolan are elaborated in the blood and urine, the latter serving as a commercial source of supply. Prolan has been produced in a pure crystalline form and recently has been crystalized. Phillip in Europe and Collip in America believe prolan is elaborated by the placenta and in support of this belief they call attention to: (1) a case of live ovarian pregnancy surrounded by a massive fibrin layer, with no prolan in the urine; (2) its absence in some cases of hydatiform moles and chorioepitheliomata; (3) the fact that prolan appears immediately after pregnancy, while the pregnancy cells are not found until two months after pregnancy take place; (4) absence of the hormone in the human hypophysis during pregnancy.

In refutation of this and supporting the hypophyseal origin is the prompt appearance of prolan after surgical ablation of tne gonads. Prolan, which appears in the urine of pregnant women, is gonadotropic but less effective than the true gonadotropic hormone found in the hypophyseal itself. (1) Prolan has sharply limited effects while the true hypophyseal substance gave increasing effects on genital growth. (2) Prolan will not increase the size of the testes in birds. (3) Prolan will not cause reddening of the sexual skin in macacus monkeys while hypophyseal hormone does this readily. (4) Prolan is not effective in hypophysectomized animals in many cases even when massive doses are used. Evans and his co-workers have found a new hypophyseal substance which when added to prolan increases its potency tremendously. It is present in alkaline growth hormone extracts, but may be separated from both the growth and sex hormones. This substance which Evans terms the activator of prolan gives to the latter a potency greatly exceeding anything previously found and probably will be of great therapeutic importance.

Corner in 1930 published studies which give evidence of a hypophyseal hormone which controls lactation. Recent work by Riddle and his associates has greatly strengtrened this view, but as yet this substance has not been isolated from other hormones. Some evidence exists that the corpus luteum may exert an influence upon development of the mammary tree, which development must occur before the lactogenic hormone provokes a true milk secretion.

Clinical studies have shown very low basal metabolic rates in proven cases of pituitary cachexia. A marked lowering of the specific dynamic action of food is a constant finding in Frohlich's adiposity. Carefully controlled experimental work by Foster and Smith confirms these findings. They also verified the observation of Baumann and Hunt that thyroidectomy obliterates specific dynamic action as did hypophysectomy. Substitution of the whole

pituitary gland brought conditions back to normal. Subnormal thyroid function always follows hypophysectomy, causing a lower basal metabolic rate than complete thyroidectomy. Anterior lobe extracts quickly restore the thyroid after hypophysectomy and cause a rapid rise in the basal metabolic rate. The thyreotropic hormone has been separated from the growth hormone and by its use experimental exophthalmos has recently been produced for the first time.

Cushing, in his earlier ablations of the hypophysis, noted an increased tolerance to carbohydrates which contrasts to the decreased sugar tolerance and diabetes often found in acromegaly. That a pancreatic-hypophyseal relationship exists has been shown by Houssay and Magenta of Buenos Aires who first demonstrated the increased sensitivity of insulin shown by hypophysectomized dogs and pointed out that diabetes produced by ablation of the pancreas was relieved by hypophysectomy. Evans, Meyer, Simpson and Reichert have produced true diabetes in normal dogs by alkaline extracts of the hypophysis, which finding is strong evidence in suggesting a pituitary causation of diabetes mellitus presumably by over-production of a pituitary hormone, diabetogenic in effect, which possibly acts by depression of the Langerhans tissue. While the diabetogenic factor is unknown, strong evidence of its presence is presented.

Camus and Roussy in 1921 showed that the adiposities which so often accompanied hypophyseal ablation could be produced by injury to the tuber cinereum when the gland itself was uninjured. This has subsequently been confirmed, and experimentally perfect dwarfism may be produced by hypophysectomy without traces of adiposity. It has been shown by Raab that the fat regulating center is located within the hypothalamus and is dependent upon a normal supply of pituitrin. He found that subcutaneous injection of several cubic centimeters of pituitrin in dogs caused rapid absorption and destruction of the circulating neutral fat by the liver, thus preventing its deposit in the tissue. If the tuber cinereum is destroyed or the nerve pathways cut between it and the liver the effect of pituitrin is lost. These observations explain in part the so-called pituitary obesity. Camus and Bailey also maintain that the tuber cinereum in the hypothalamus is the center of fat metabolism. These findings make a direct relationship between the so-called pituitary adiposity and pituitary hypofunction probable. Evans states emphatically that the gonadotropic hormone is not involved in pituitary obesity.

Anselmino and Hoffman in 1931 demonstrated a substance from the pituitary similar in properties to prolan which they believe to be a hormone regulator of fat metabolism. By injecting this substance into rats and humans an acetonemia is produced. The increase of betaoxybutyric acid is relatively greater than the increase of acetone and acetoacetic acid. A direct relationship of the acetone bodies to fat metabolism is self-evident since these acids are decomposition products created during the combustion of fat. This substance or hormone is thrown into the blood only when fat is burned, namely, after a fat meal and in starvation. Anselmino and Hoffman consider this to be a true fat metabolism hormone. While importance of the neuro-pituitary mechanism to carbohydrate metabolism is as yet unsettled, a close relationship is indicated by Evan's work in which diabetes was produced by injection of the diabetogenic hypophyseal hormone.

The posterior lobe or neurohypophysis is composed of neuroglia tissue and is separated from the adenohypophysis or anterior lobe by a layer of epithelial cells, the so-called pars intermedia. According to Geiling the posterior lobe secretion is elaborated by the pars intermedia, the posterior lobe acting as a reservoir for the hormone. According to Cushing and Goetsch the hormone is discharged into the third ventricle and thence into the blood stream. It is probable, however, that the secretion passes both into the ventricle and into the blood vessels. Pituitrin, the second internal secretion to be identified, was produced in 1895 by Oliver and Schafer who first demonstrated its prompt stimulating action upon the uterus; however, Blair Bell had previously introduced it into obstetrical practice several years before.

The influence of pituitrin on carbohydrate metabolism has been a much discussed subject. Frohlich's disease is associated with a decided increase in carbohydrate tolerance. In contrast hyperpituitarism (acromegaly) is frequently associated with glycosuria, hyperglycemia and lowered galactose tolerance. Injections of pituitrin cause hyperglycemia and glycosuria. Raab has demonstrated that injection of pituitrin into dogs is followed by the

absorption and destruction of the circulating neutral fat by the liver, thus preventing its deposition into the tissues. He has also shown that this effect disappears after destruction of the tuber cinereum. Raab's work gives some scientific basis for the obesity often accompanying pituitary insufficiency.

The success of posterior pituitary extracts in relief of diabetes insipidus indicates an antidiuretic effect. Diabetes insipidus is often associated with lesions about the hypophysis and floor of the third ventricle. According to Lewis in seven per cent of interpeduncular tumors associated with Frohlich's disease diabetes insipidus is present at some time.

In 1929 Kamm and his co-workers reported the separation of pituitrin into two independent fractions, alpha-hypophamine which they termed pitocin and beta-hypophamine, termed pitressin. Alpha-hypophamine or pitocin is oxytoxic, causing contraction of uterine muscle when injected into a normal animal and contracting isolated uterine muscle when applied by contact. It is practically free from action on other forms of smooth muscle. Beta-hypophamine or pitressin has no effect upon uterine muscle but stimulates other smooth muscle to contraction. It raises blood pressure, stimulates peristalsis of the gastro-intestinal tract and has both a diuretic and anti-diuretic effect. Kamm and his co-workers have apparently succeeded in isolating a pressor-free, diuretic-free melanophore fraction from pitressin which has a regulating effect upon pigmentation.

OVARY

Two active hormones have been isolated from the ovary and have found extensive clinical use in treatment of disorders of the climacteric and reproductive cycle. The first, oestrin, the female sex hormone, was prepared in potent form by Iscovesco in 1912 and has recently been obtained in a crystalline form having a high degree of potency and purity by Doisy, Veler, and Thayer. An idea of its potency is given by the fact that one gram of the crystalline product is equal to two million rat units. Physiologically it is derived from the theca interna and stratum granulosum of the ovarian follicle. The second, progestin, is the active hormone of the corpus luteum. It has been shown conclusively that the combined and balanced action of the two ovarian hormones is essentiial to the normal sexual cycle.

Oestrin produces specific alterations in the tubes, uterus and vulva of castrated or immature animals. By its administration the uterus becomes greatly enlarged and vascular, and the menstrual cycle can be reproduced by adequate dosage of oestrin and the luteal hormone, progestin, the latter being essential to the premenstrual phase. It has been shown experimentally by Allen that large doses of oestrin produce an inhibitory effect on the ovaries. Changes described by various investigators are ovarian atrophy, a decrease in primordial and medium sized follicles, and with incomplete growth and development of the ovary of immature animals. Dahlberg was able to inhibit the gonad stimulating hormone effect of the ovary by simultaneous injections of follicular fluid, concluding that oestrin counteracted the effect of the pituitary sex hormone by prevention of ovulation and luteinization. Experimentally in the rodent an excess of oestrin inhibits conception and interrupts pregnancy. Oestrin also produces hyperplasia of the mammary tree and restores the lowered basal metabolism in castrates to normal. In 1923 Allen and Doisy standardized a biological assay of the hormone by the vaginal smear method. By injection of follicular fluid into castrated or immature rodents the vaginal reaction is that of full oestrus in seventy-two to ninety-six hours, which is characterized by cornification of the vaginal walls as determined by vaginal smears. Zondek discovered huge quantities of the hormone in the urine of pregnant women which now serves as the most abundant source of the hormone for commercial use. Large amounts are also found in placenta, follicle-fluid, and amniotic fluid. The crystalline female sex hormone prepared by Doisy, Veler, and Thayer has been named theelin.

Recently Thayer, Levin and Doisy have isolated an oestrus-producing substance called theelol, similar in physical properties to theelin, but unlike the latter in that it is effective by mouth. It is the belief of these investigators that it represents a transformation of theelin by the process of extraction and purification. Its influence, like that of oestrin, is confined entirely to the tubular tract. This hormone also promotes the development of secondary sex characteristics and allays hyperexcitability incident to the menopause.

Progestin, the second ovarian hormone, is obtained by extraction from the corpus luteum. Frankel (1903-1910), in a large

series of experiments, showed that removal of the ovaries or destruction of the corpus luteum in rabbits during the first six days after mating invariably resulted in abortion. Corner and Corner and Allen in 1929 confirmed this work and prevented abortion in ovariectomized rabbits by injection of luteal extracts. Progestin has an inhibitory action upon estrus. It also has for its function the progestational proliferation of the endometrium following the hormonal action of theelin and sensitization of the endometrium for implantation of the fertilized ovum, growth of the decidua, maintenance of pregnancy and inhibition of ovulation. In the human female active corpora lutea form spontaneously with the menstrual cycle, as indicated by the cyclical formation of the premenstrual endometrium, persisting throughout gestation if pregnancy occurs, and becoming atrophic if it is missed. Morrell has demonstrated the ability of the hormone to nullify the effect of pituitrin on the guinea-pig uterus, and the inhibitory effect of the lutein hormone on the uterine constractions has been demonstrated by Hisaw. Experimental evidence points to progestin as inhibiting the production of the follicle hormone and promoting its excretion. Since progestin inhibits ovulation and also inhibits the action of pituitary transplants it apparently depresses the anterior pituitary. Although the hormone has not been obtained in pure form its physical and chemical properties have been described. Preparations have been standardized by Corner and Allen.

TESTIS

In the new-born the interstitial cells of the testis are few and diminish in number until puberty when they again increase with the onest of spermato-genesis. They remain approximately constant during sexual life and diminish in later life. These cells, histologically, are epithelial in appearance and are usually arranged about the blood vessels. If the testes are removed early in the human, the reproductive apparatus does not develop. The seminal vessels and prostate remain small and atrophic and secondary sex characteristics do not appear. There is no growth of hair on the face or body, the pubic hair is of the female type, the growth of the larynx is arrested, the mentality is peculiar and there is a tendency to gigantism due to late epiphyseal union. Abnormal accumulations of fat are found on the buttox, hips, pubes and breasts.

Many workers, including Steinach of Vienna, believe that the testicular secretion is elaborated by the interstitial cells. Upon this assumption Steinach claims that ligation of the vas, which brings about degeneration and atrophy of the tubular spermatic tissue, leads to hypertrophy and hyperplasia of the interstitial cells which results in restoration of waning sexual function and causes a rejuvenation of bodily and mental vigor. Voronoff and his followers in France claim the same results by transplantation of normal testicular tissue of another human being or of anthropoid apes. The supposed action in the Voronoff procedure is the same as that of Steinach. Transplantation leads to degeneration and disappearance of the tubular germinal cells and supposedly of the interstitial cells. Recent investigations by Kraus of Prague lead to the conclusion that ligation of the vas does not lead to any actual increase of interstitial cells in young or old animals. He found that the interstitial cells themselves disappeared if the tubular epithelium was completely destroyed. Kraus believes the specific hormone of the testis is elaborated by the specific germinal cells and that the function of the interstitial cells is a trophic one, furnishing nourishment for the germinal epithelium. Moore at the University of Chicago has called attention to the fact that the general laws of species specifically make it highly improbable that tissue from another than the host will prove susceptible for incorporation. Transplants of testes tend to become non-viable. Proofs of functional persistence are singularly lacking and unconvincing so far as the human tests show. Moore has shown that autolysis of non-viable testicular grafts does not liberate the secretion in amounts that can be detected by means at present known. Further, the male hormone is not stored in the body but is excreted by the kidneys. A continuous supply is necessary to maintain the secondary sex characteristics in a normal condition. In face of these facts little or no reliance may be placed upon the work of Steinach and Voronoff.

The occurrences of the male hormone in the urine of young men has been demonstrated by Funk, Harrow and Lejwa.

The male sex hormone has not, as yet, been positively identified but has been produced in potent form by McFee, Domm, Juhn and Moore, McGee, Gallagher and Koch. By injection into capons definite

increased growth of comb and wattles was produced while in castrated mice and rats enlargement of the seminal vesicles was noted. As yet the use of testicular substance is in the experimental stage but it is hoped that in cases in which the testes have been damaged, removed or are primarily deficient the hormone will prove of benefit.

THE PINEAL BODY

To date, little evidence has been produced which throws any light upon the function of the pineal gland. Experimentally Horrax hastened development of the reproductive organs in the guinea-pig by extirpation of the adrenal body. Dandy (1915) found that extirpation of the pineal resulted in no change in growth or genital development.

Pineal tumors, usually destructive teratomas, have been described as producing precocious puberty by removal of the inhibitory influence of the glands upon the gonads. According to Mazer and Goldstein, the pineal body must exert any sex inhibiting influence by action on the anterior pituitary, as this gland is the chief controlling factor in function of the ovary and testes.

THYMUS GLAND

The thymus gland, since its discovery by Galen, has been the subject of a tremendous amount of conflicting and fruitless experimentation. Ablation and replacements have produced no constant results and there are few known facts concerning its function. The literature affords no reliable evidence that the thymus has any true internal secretion. It is undoubtedly of importance because of its lymphoid character, and may possibly be concerned with the defensive mechanism against infections. No attempt will be made here to review the great mass of controversial material. The thymus clinically is of interest because of such conditions as status lymphaticus, thymic enlargement, and thymic neoplasms.

PARATHYROID GLAND

The parathyroid glands were discovered by Sandstrom in 1880. Eleven years later Gley called attention to the physiologic significance of the glands to tetany, but his observations were overlooked until recent years. With increased investigation of the thyroid gland and the chemistry of foods, calcium metabolism and the parathyroid glands have assumed a prominent role in the field of metabolism and nutrition.

Erdheim in 1911 concluded that tetany followed parathyroidectomy, and that changes in the teeth and bones occurred following removal of the glands. In 1916 Noel Paton and his co-workers advanced the theory that tetany was due to methyl guanidine and that the function of the glands was to remove guanidine as a preventative measure of tetany. McCallum and Voegtlin in 1909 propounded the theory that tetany was due to a deficiency of body calcium. The next great advance was made by Collip who in 1925 reported preparation of a potent hormone which relieved experimental tetany in dogs. By use of this extract it has been possible to investigate fully the functions and chemistry of the parathyroid glands. Sabbatini in 1901 first drew attention to the sedative actions of calcium upon nerve tissue and Parhon and Urechie in 1907 demonstrated in experimental animals that calcium chloride injections would completely control the convulsions following parathyroidectomy. Dragstedt (1922, 1923, 1924) and his associates in experiments upon animals were able to prevent death in parathyroidectomized animals by avoiding intestinal intoxication by use of a carbohydrate diet and were able to precipitate attacks of tetany in the same animals by feeding meat and other protein foods.

Dragstedt concluded that the toxic agents following parathyroidectomy arise through the activity of the proteolytic group of intestinal bacteria and consist chiefly of protein-split products of the nature of the amines, guanidine, methylguanidine, histamine, choline and trimethylamine. He also concluded that the function of the parathyroids is to prevent intoxication by these poisons. Soon afterwards Luckhardt and Goldberg found that parathyroidectomized dogs could be kept alive indefinitely on a diet rich in meats by the oral administration of calcium lactate.

Collip's parathormone, when injected, causes a mobilization of the calcium in the blood with a definite increase in the diffusible fraction. This diffusible fraction is decreased following parathyroidectomy. Blood calcium levels give no absolute idea as to the ratio of the diffusible and nondiffusible fraction but correspond in a general way to these levels. Bergeim and Irving have shown that increased acidity favors the absorption of calcium. With increase of serum calcium and the ionized fraction phosphorus levels drop; converse-

ly with a decrease of calcium levels, serum phosphorus rises. It is of interest to note that with starvation there is an irreducible minimum of excreted calcium which varies from 400 to 600 milligrams daily. A definite but as yet only partially explained relationship exists between the parathyroid glands and vitamin D. Paradoxically, both tetany and hyperparathyroidism, clinical conditions representing deficiency and hyperactivity of the parathyroids, are relieved by administration of irradiated ergosterol or cod liver oil. Quick and Hunsberger suggest an antagonism between the parathyroids and vitamin D as well as a synergism in so far as vitamin D seems to aid absorption of calcium from the gastro-intestinal tract and cause desposition of calcium in the bones, while the parathyroids mobilize calcium from the bones into the blood stream. While the subject of calcium is extremely complex and influenced by many factors we may conclude that the parathyroid glands govern calcium metabolism and prevent intoxication by guanidine, methyl-guanidine and other protein-split products formed in the intestines. Undoubtedly important hormonal relationship exists between the parathyroid, thyroid, ovaries, testes, and pituitary glands but these will not be discussed here for lack of space.

ADRENAL

The adrenal gland is composed of two distinct parts: the cortical layer arises embryologically from the mesoderm, while the medullary portion is ectodermal in origin. It has now been firmly established that the cortical portion is essential to life since extirpation is always fatal, removal of the suprarenal glands inevitably resulting in the death of experimental animals in a few days. In fact, the adrenal cortex is the only gland absolutely essential to existence. Wheeler and Vincent have demonstrated that animals survive the operative removal of all the medullary tissue in both glands, which findings have been confirmed by numerous investigators.

Although not essential to life, the hormone of the adrenal medulla performs an important function as a powerful stimulator of the autonomic nervous system. Cannon believes from his experiments upon animals that during fear, rage or anger there is an outpouring of the medullary hormone, adrenalin or epinephrine, into the blood stream which mobilizes the liver glycogen and shortens the coagulation time of blood, at the same time inhibiting digestive and sexual functions. That adrenalin is antagonistic to insulin is shown by its ability to mobilize liver glycogen and to counteract hyperinsulinism. Injection of the hormone also raises the blood pressure by its vascoconstrictor action upon peripheral blood vessels and its direct action upon heart muscle. By its incretory effect on endocrine and non-endocrine function it serves as an inter-relating influence between the two systems. The hormone was isolated by Takamine and Aldrich and has been produced synthetically as a racemic body by Stolz and Dakin.

Swingle and Pfiffner, Rogoff and Stewart, and Hartman have isolated active extracts from the suprarenal cortex which keep adrenalectomized animals alive and which, when injected into patients suffering from Addison's disease, produce phenomenal improvement and maintain comparatively good health in patients suffering from what was formerly a uniformly fatal disease. This substance is known to be essential to life, it lowers the blood urea when it is high, increases resistance to infection and to cold, accelerates repair of injury, and is an important factor in maintenance of body temperature and the basal metabolic rate. Adrenal cortex insufficiency has its clinical counterpart in Addison's disease which is characterized by asthenia, hypotension, emaciation, pigmentation of the skin and buccal mucosa, gastric disturbances, low sugar tolerance and decreased temperature and metabolic rate. Adenomata of the suprarenal cortex presumably resulting in hypersecretion, produce in children the clinical picture of macrogenitosomia with accelerated somatic and precocious sexual development, while in the adult female virilism, excessive hair growth, reversal of sex characteristics, hypertension, renal diabetes and physical changes characteristic of the male. It is probable that the important physiologic relationship with the pituitary, ovary, testis, and thyroid, as yet unknown, will soon be worked out and scientifically established.

PLACENTA

As early as 1912 Iscovesco obtained a lipoid principle from the placenta which produced growth and vascularity in the tubular tract of the rabbit. In 1910 Fraenkel demonstrated that the corpus luteum is essential to pregnancy for some time after implantation has taken place. Investigations by Courrier and Kehl have

shown progestin effects in late pregnancy. Progestin may be obtained from the placenta except in late pregnancy and it is certain the placenta either produces or stores progestin.

Weisner, Collip and others have demonstrated the presence of the anterior pituitary sex hormone in the human placenta. Collip believes that the placenta is the endocrine gland of pregnancy; Evans and his co-workers, on the other hand, are inclined to believe it serves as a storehouse for the secretions of other glands. Zondek is of the opinion that the pituitary sex hormone of pregnancy, prolan, is produced by both pituitary and placenta.

Phillips has produced evidence that the anterior pituitary gland in pregnancy is less active than in the non-pregnant state and that the great amount of hormone produced is placental in origin. Contrary to this evidence, Novak in a postmortem study of a case of chorioepithelioma concluded that the trophoblastic tissue causes an increase in size and function of the hypophysis with production of large amounts of prolan and subsequent leutinization effect.

Collip in 1930 extracted a fraction from the human placenta similar to estrin in physical properties, but not in physiological properties, which he has termed emmenin. It produces oestrus in immature rodents but does not influence the ovaries or tubular tract and has no effect on the genital organs of the castrate. It does not interrupt pregnancy as does oestrin when given in large doses, and unlike oestrin it is effective by mouth. This oestrus like fraction is probably a placental product, having moderate activating effect on the primordial follicles without producing the hemorrhagic cysts and hyperleutinization which follow administration of the anterior pituitary hormone. In an excellent review of the literature and from clinical studies of combined prolan and anterior pituitary therapy, Mazer and Katz conclude: "Studies now available in the literature indicate that prolan is apparently a placental hormone, not identical with the pituitary sex hormone; that prolan probably stimulates the gonado-trophic cells of the hypophysis to a moderate degree; that the anterior lobe of the hypophysis apparently produces a prohormone which, in itself, possesses no gonadotropic properties but is readily converted into an active sex hormone by prolan; and that this prohormone is neither the growth promoting principle nor the sex stimulating hormone of the hypophysis. It is, however, present in both extracts."

DISCUSSION—*Dr. P. A. Staley:*

The menopause is essentially a failure of ovarian function and has no relation to the hypophysis so far as we know. Ovarian function fails largely because of fibrotic changes which replace the glandular tissue. Menopause symptoms are due to lack of the follicle hormone oestrin. There is no known relationship between the menopause and pituitary secretion.

THERAPEUTIC EXERCISE

In their second and concluding article on therapeutic exercise J. S. Coulter and C. O. Molander, Chicago (Journal A. M. A., Jan. 19, 1935), give both passive and active therapeutic exercises for the elbow joint, for the hand and wrist, for the hip joint, for the knee joint and for the foot and ankle. Occupational therapy is also given for the elbow, wrist and hand.

EXPERIENCES WITH GONOCOCCUS FILTRATE (CORBUS-FERRY) AND OTHER FORMS OF INTRADERMAL THERAPY IN TREATMENT OF GONORRHEA

Gonococcus filtrate (Corbus-Ferry) intradermally is the only antigen of the several that Robert E. Cumming and Robert A. Burhans, Detroit (Journal A. M. A., Jan. 19, 1935), have used that seem to offer a specific aid in the treatment of gonorrheal infection and complications. No attempt has been made to explain the rationale of intradermal medication or to establish the part played by the skin in body immunity. They demonstrate that the filtrate can be used alone in the treatment of gonorrhea. It is their impression that gonococcus filtrate is most serviceable as an adjunct to mild local treatment. The filtrate is indicated in acute and chronic gonorrheal infections of men, women and children. It has been used freely in all types of complications and, in their opinion, has some virtue in amelioration, although other treatment, not so important in simple urethral involvement, is of prime necessity. The authors have not followed the recommendation of Corbus but have used the filtrate freely in all stages of the infection and complications. They have departed from the recommended dosage scheme by giving not more than 0.1 cc. of filtrate (children should receive from 0.05 to 0.15 cc. of filtrate), increasing weekly by from 0.05 to 0.2 cc. (1/20-4/20), depending on the local skin, regional lymph gland, and systemic reactions as well as on the character of urethral discharge and the states of the infection. Complications are today, as they have always been, of greatest importance in gonorrhea; late and unexpected transmission of the disease, sterility in both sexes, and the determination of safety in marriage are questions peculiarly in the domain of the consulting urologist. The determination of cure in gonorrhea has always been a difficult problem. The authors believe that their use of gonococcus filtrate in large doses (from 0.1 cc. to 0.4 cc.) as a diagnostic or provocative agent to demonstrate dormant infection is a milestone in progress toward the ultimate cure of obstinate gonorrhea.

THE USE OF DILAUDID IN GENERAL PRACTICE*

CLIFFORD M. BASSETT, M.D.
CUSHING

The control of pain—the most disturbing and disabling symptom in many illnesses—has been a main objective, if not the goal of many physicians, in years past. They know that to relieve pain is to give rest, to promote healing, and to earn a grateful patient. During the last 75 years the physician has been given tools to use in pain relief by the remarkable development of new chemicals and the study of their properties by pharmacologists. Various analgesic drugs have been offered and studied with an idea that opiates might possibly be eliminated, but now, as in the early days of medicine, opium, its analgesic alkaloids and derivatives of these alkaloids still appear to be the most effective clinical pain relieving agents. Opiates have their undesirable as well as their desirable effects, so to the problem of reducing or eliminating these undesirable effects the chemist and pharmacologist have devoted their study.

In 1932 Alvarez[1] of the Mayo Clinic reported favorably on the pain relieving qualities of a new opiate, dilaudid, a morphine derivative, which appeared to be better than morphine in many ways. About a year later Menard[2] of the Lahey Clinic called attention to the good results which dilaudid had given him for patients with incurable cancer. These reports aroused my interest, so I began a study to determine the use of dilaudid in general practice. Since this study began, other reports have appeared—Morrish[3] of St. Louis emphasized the use of dilaudid orally in chronic conditions as cancer and tabetic crisis, and Jacobs[4] of Georgetown University reported that dilaudid was better than morphine for relieving obstetrical pain. My work with dilaudid, chiefly in general practice and for the relief of post-operative pain, for cystoscopic examination or other minor procedures, has proved to my satisfaction the value of the drug for these conditions as well as for its use in cancer, to which attention had been called by other observers. I am also well satisfied with dilaudid as a cough sedative.

The drug dilaudid is a morphine derivative, dihydromorphinone hydrochloride, a rearrangement of the morphine molecule. This change in chemical structure of the morphine molecule increases the analgesic effect about five times, appears to remove the constipating effect and also seems to eliminate much of the euphoric effect of morphine. My observation has shown that the nauseating and emetic effect of morphine are almost entirely absent. With one or two patients I observed a slight dizziness and confusion, but this was transient, lasting but a few minutes.

Dilaudid, in general practice, gives the physician a drug that can be employed in many varied conditions to bring relief from pain. It is a powerful analgesic, with a prompt and definite action. Following a specific dose, a corresponding certain degree of analgesia may be expected. I have given patients morphine in 1/4 grain doses only to find it necessary to repeat the dose in 30 to 40 minutes; with dilaudid I have not encountered a case that either 1/32 or 1/20 of a grain did not give complete and persistent relief. I have not found it necessary to give large doses, as the effect of dilaudid persisted for some time following its administration. In the post-operative cases many of the patients go from six to eight hours before requiring further analgesic medication.

In this series of operative cases I have found that dilaudid does not depress the respiratory system or mechanism as profoundly as morphine, and in none of the cases did the respiration fall below 18. Respiratory depression may be a symptom when a toxic dose is given but I am of the opinion that dilaudid in the usual analgesic dose produces very little respiratory depression. To date I have not determined the toxic dose of dilaudid, although I know of instances where it has been administered in doses one would consider as excessive; these large doses were given to patients with carcinoma, suffering excru-

*Read before the Section on General Medicine, Annual Meeting, Oklahoma State Medical Association, Tulsa, 1934.

ciating pain, affording relief without noticeable untoward effects in each instance. We may later learn that the toxicity of the drug depends in a measure on the degree of pain—and that the large doses which may be given to patients with severe pain without ill effects, would be dangerous if given to patients with milder pain. In this respect dilaudid probably should be used like morphine, keeping in mind that the dilaudid dose is but about 1/5 the morphine dose.

In the presence of severe pain, which did not permit rest or sleep, I have given dilaudid to relieve the pain and had these patients to fall asleep within 20 or 30 minutes. The rest thus begun is probably due in most cases to the relief of the pain, with a general relaxing effect on an exhausted patient, but one also has to consider the possibility of a definite hypnotic effect. Most observers report that the hypnotic effect of dilaudid is less than that of morphine, but I believe this phase of the action of dilaudid deserves further study.

The relaxing properties are also apparent in the post-operative period as shown by the infrequent occurrence of urinary retention, requiring catheterization. It was not necessary to catheterize during the post-operative course when dilaudid was used for pain. Those patients for which catheterization was advised for a time following the operation, as for example, after perineorrhaphy, were able to void easily when allowed to do so. No doubt in a larger series it might be necessary to occasionally catheterize a patient post-operatively but if the necessity for this procedure is reduced to a minimum, that factor alone should invite the universal adoption of dilaudid over any other opiate in post-operative pain.

Dilaudid in doses of 1/20 grain is much more effective and pleasing than the equivalent dose of morphine grain 1/4 in cystoscopic examinations. The patient does not experience pain to any noticeable degree, neither does he complain of vertigo.

For the pain following the injection of hemorrhoids with sclerosing fluids, I found the rectal administration of dilaudid, in the form of a suppository, effective and prompt in action. It is not always necessary in cases of this type to administer an analgesic following treatment but occasionally severe pain does develop following an injection. The insertion of a suppository of 1-/24 grain dilaudid gave relief of pain within a few minutes, which lasted from five to eight hours. The suppository mode of administration of the drug affords the physician a means of administration to those patients who abhor hypodermic injections or where oral administration is not advisable due to some gastric disturbance.

I have also used dilaudid as a cough sedative with good results. It exhibits a sedative effect similar to heroin and in very small doses. I have used as little as 1/20 to 1/10 grain in one ounce of vehicle. It does not inhibit secretions, induce constipation, nor do the patients complain of drowsiness.

One factor which makes the drug pleasant to work with is its solubility. The time consumed in preparing hypodermic medication is greatly reduced, and this, plus rapidity of action of the drug, insures relief to the suffering patients in the shortest possible time.

I am appending a few case reports which will show my use of dilaudid in several conditions commonly encountered in general practice:

Case No. 1: M.M., male patient, age twenty-four years. Patient was awakened early in the morning of March 4, 1934, complaining of generalized abdominal pains. These pains became gradually worse and at 11:00 A.M. he came to the office. Examination revealed a tenderness over McBurney's point with a definite rigidity and rebound tenderness. Blood count 13,600 with 82 per cent polys; operation for appendicitis was advised and patient was sent immediately to the hospital. At 3:20 P.M. same day, March 4, patient received three grains of sodium amytal and at 3:25 P.M. morphine sulphate, grains ¼, and atropine grains 1/150. An acutely inflamed appendix was removed under spinal anesthesia using 150 mg. novocain crystals. At 6:25 P.M. patient received 1/20 grain dilaudid per hypo. This dose was repeated at 11:25 P.M. On March 5 patient received 1/20 of dilaudid per hypo—at 4:10 A.M., 12:30 P.M., 10:10 P.M. On March 6 patient received a similar dose, at 5:10 A.M. and 10:45 P.M., this being the last analgesic or hypnotic administered. The patient received 7/20 grains of dilaudid during his post-operative course. The patient was dismissed from the hospital on the fourth post-operative day. It was not necessary at any time to catheterize the patient and at no time did he complain of severe pain, the dilaudid being given because of restlessness. After the administration of each dose of dilaudid the patient was relieved within five minutes. There was very little distention present.

Case No. 2: Mrs. F.W.D., age thirty-seven, was first seen two hours after she had expelled a three months fetus. The placenta was retained. Examination of abdomen revealed a large uterus with extreme tenderness on palpation to the extent that it was impossible to exert pressure on the uterus. The patient was given 1/20 grain of dilaudid hypodermically. Within three minutes a physiological effect was not-

ed and at the end of six minutes the placenta was expelled, the patient suffering no pain.

Case No. 3: Mrs. W.S.H., Primipara, age 33. This patient first came to the office for medical attention on December 1, 1933, complaining of a pain in the region of the left kidney. She stated that she had been passing small amounts of blood in the urine for the past twelve months. She last menstruated on July 25, 1933. Examination revealed a palpable kidney on the left side and a pregnancy of about four months duration. On December 28, 1933, a cystoscopy and pyelogram was done which revealed a calcified tumor of the left kidney. Patient still complained of a constant pain in the left kidney region, which increased as the fetus grew larger and became more active. The patient was put on dilaudid, 1/24 grains orally. This dose was repeated, usually 1 to 3 doses daily, when necessary during the remainder of the pregnancy. March 30, 1934, patient was given a transfusion of 500 cc. of citrated blood, which was repeated on April 4, 1934. At 7:20 P.M., April 5, 1934, the patient went into active labor; at 9:15 P. M. 1/32 grain of dilaudid and 3 grains of sodium amytal were given. One hour later this dose was repeated, and at 1:05 A.M. she delivered a baby girl weighing 4 pounds and 14 ounces. There appeared to be some asphyxia of the child, so she was immediately given 1 cc. metrazol in the gluteal muscle; restoration immediately. Patient had very easy labor, complained of no pain and a slight induction of ether only had to be given as the head was being delivered.

Case No. 4: Mrs. R.L.E., age 24. This patient was admitted to the hospital March 13, 1934. The following morning a corrective operation, under ether anesthesia, was performed, consisting of cauterization of cervix, perineorrhaphy, right salpingo-oophorectomy and suspension of uterus and appendectomy. Preparatory to the operation she received dilaudid 1/32 grain and atrophine 1/150 grain. During the first three post-operative days she received a total of nine doses of dilaudid, 1/32 grain. Because of the perineorrhaphy she was not allowed to void for three days, but when allowed this privilege she had no difficulty in urinating. At no time did her respiration fall below 18 and she complained of no gas, nor was there any evidence of constipation after receiving the first enema.

Case No. 5: Mrs. C., age 27, had been troubled with dysmenorrhea and menorrhagia since puberty, and as she became older she became very apprehensive during the menstrual period. The dysmenorrhea and menorrhagia was always more severe during the second day of menses, and she would then become hysterical. It was always necessary to administer some form of opiate but usually nausea and vomiting with increased nervous tension resulted. Sedatives and antispasmodics were given without avail; on several occasions glandular treatment was administered, and twice she was given a dilation and curettage which only produced temporary relief. Because of the nausea caused by the administration of morphine it was decided to use dilaudid and so at the onset of the next menses an enema was given and a rectal suppository containing dilaudid grain 1/24 was inserted; within 20 minutes the patient was relieved. Only one dose of dilaudid was necessary during the entire period and she did not develop any nausea.

Case No. 6: A child twenty-two months of age ran a splinter under the finger nail while playing. The finger became infected and in about a week from the time of injury the finger nail came off. Approximately 15 days from day of injury the child's arm became stiff and he could not feed himself. This symptom was followed rapidly with inability to open the mouth, marked tonic spasms of muscles of face, neck, arms, and legs and finally a severe opisthotonos. A diagnosis of tetanus was made and the child was given dilaudid grains 1/40 subcutaneously. In twenty minutes enough relaxation was obtained so that a spinal puncture could be done and 10,000 units of tetanus antitoxin introduced into the spinal course. The child was then given dilaudid grain 1/80 every 2 to 3 hours for three days and 10,000 units of tetanus antitoxin intravenously daily for the same period. After which time all symptoms of tetanus had disappeared. The patient received in all 40,000 units of tetanus antitoxin and approximately 1/3 grain of dilaudid. There was apparently no respiratory depression caused by the dilaudid, no nausea or vomiting and excretory organs functioned normally. From then on recovery was uninterrupted.

In conclusion let me say that I believe in dilaudid the profession has available an analgesic drug which has definite advantages over morphine, since it exerts a powerful analgesic effect in small doses, which is manifested quickly and is prolonged. With dilaudid the tendency toward untoward side-actions, such as nausea, constipation and urinary retention, is less than with morphine. In my experience dilaudid has proved to be more desirable than heroin for the control of coughs.

DISCUSSION—*Dr. A. W. Pigford,* of Tulsa:

Dr. Bassett asked me to discuss his paper, due to the fact that the man he had asked to discuss it has left town.

My experience in these cases has been very much limited—to possibly thirty cases. Three of these were renal colic. In only one of the three was it necessary to repeat dilaudid, two being relieved with one hypodermic. The other cases were post-operative.

I find that when morphine is being used with bad effect—such as causing nausea, vomiting, headache, dizziness, and apprehension—by substituting dilaudid these unpleasant effects are overcome.

In chronic cases where a narcotic has to be continued, dilaudid is much preferred to morphine. This is especially true in carcinoma cases.

I get from the literature that dilaudid is non-habit-forming, again making it much more satisfactory. Personally, I have not had the experience of continuing it for an indefinite time.

CONCLUSION

Dr. Clifford M. Bassett: I wish to thank you for your kind attention and Dr. Pigford for his interesting discussion.

In my work with dilaudid I have observed some very interesting and gratifying results. It has without a doubt some

very definite advantages over morphine, and I am of the opinion that this drug is entitled to a thorough trial by the medical profession.

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PERIARTERITIS NODOSA: REPORT OF CASE WITH FATAL PERIRENAL HEMORRHAGE

George K. Wever and Isabella H. Perry, San Francisco (Journal A. M. A., April 20, 1935), cite a case of periarteritis nodosa that presented a clinical picture simulating an acute surgical condition of the kidney so closely that nephrectomy was performed. The patient was referred to the hospital by his private physician because of a suspected renal stone. After the first period of observation a diaguosis of chronic nephritis was made. Six months later a diagnosis of perirenal abscess seemed justified and an operation was performed. A perirenal hematoma was found and the kidney with the surrounding hematoma was removed. The patient died ten hours after the operation from another massive hemorrhage into the renal fossa. The frequent involvement of the kidney in this disease has been emphasized by Gruber and by Arkin. The usual clinical signs pointing to the kidney are those of a nephritis and consequently the most frequent clinical diagnosis has been "hemorrhagic nephritis". In at least eight cases of periarteritis nodosa found in the literature, death has been due to renal or perirenal hemorrhage. Goldstein and Wexler have described the pathologic changes in the retinas of a patient dying with periarteritis nodosa, suggesting the possibility of ophthalmoscopy being of aid in recognizing the periarteritis nodules on the choroidal vessels. The ophthalmoscopic picture thus far described in patients with periarteritis nodosa does not seem to be characteristic of the disease, but it is possible that in some cases correct diagnosis may be attained by the finding of tubercule-like lesions on the choroidal vessels. On the other hand, this finding might serve to confuse the diagnosis by bringing up the possibility of tuberculosis. In the authors' case the retiral changes were those of albuminuric retinitis. The long standing hypertension, with its resulting sclerotic changes, and the nephritis would readily explain the picture. Roentgenographic studies of the chest showed the lung fields to be clear. The general symptoms of this disease are those of any acute or chronic sepsis. The local manifestations are extremely variable because they are governed by the site of localization of the vascular lesions. Correct diagnosis during life is therefore very difficult. The hope for more accurate diagnosis of periarteritis nodosa during life lies in the recognition of the existence of such a disease by the clinician and the inclusion of it in the differential diagnosis of unusual medical and surgical problems. The etiology of periarteritis nodosa is obscure. Various theories have been advanced, the most acceptable of which proposes that the disease is infectious in origin. The very nature of the pathologic lesions suggests an infectious etiology. At the present time neither a filtrable virus nor a nonfiltrable micro-organism has been demonstrated as the causative agent. Culture of a smear taken from a mesenteric nodule at the time of necropsy of the authors' patient showed staphylococcus albus, performed eleven hours after death. The pathologic studies suggest that the causative agent has a predilection for arteries. It produces a patchy destruction of the media. The lesions tend to heal but complete morphologic and functional recovery does not take place. An aneurysm may develop in the weakened wall, or the lumen may be reduced or ob literated by the scar. The aneurysms, when they occur, may be completely walled off from the circulation and may show organization throughout. The lesions are not all in the same stage of the disease at the same time. In the present case the aneurysms were frequently found at the bases of the small arteries immediately distal to the point of branching from larger vessels. A tentative mechanical explanation of this finding is suggested by the fact that the intravascular pressure in the branching artery is highest at its base and diminishes progressively toward the periphery. The wall of the damaged vessel would be most likely to give way and form an aneurysmal dilation in the region of greatest internal pressure.

TREATMENT OF PELLAGRA

Tom D. Spies, Cleveland (Journal A. M. A., April 20, 1935), describes a method of treatment that was found highly successful in the management of 125 cases of severe pellagra. Adequate professional and nursing care are essential. All patients with pellagra must have sufficient rest and those who are severely ill must be confined to bed until their improvement warrants additional freedom. Large doses of sedatives are often necessary to accomplish this, but under no condition should they be given in amounts large enough to interfere with the patient's cooperation over long periods of time. Professional care is essential in order that the pellagrin may receive a well balanced diet containing 4,000 calories or more each day. In the most severely diseased patients the physician must supervise every detail of food taken to make sure that an adequate diet is utilized. It is often necessary for him to cooperate with and instruct the attending nurse and dietian to see that the food is given in proper amounts at specified times. The physician must see the patient often so that the amount of food lost through vomiting or diarrhea may be evaluated and corresponding additional amounts given. Good nursing care conserves the patient's strength, thus making it possible for him to obtain more rest, which helps promote the effective use of ingested food. Adequate professional and nursing care are also necessary in the local treatment of the lesions, which often makes the patient feel more comfortable and for that reason is desirable, though not necessary in effecting the cure. Coexisting diseases must be treated as well as the pellagrous condition itself. The specific therapeutic agents are yeast, desiccated hog stomach, wheat germ and liver extract. The choice of any one of the therapeutic agents should be based on the advisability of the material, the severity of the disease, and the ability of the patient to cooperate. All agents must be given in large amounts in order to remit the disease quickly. The special symptoms requiring treatment are stomatitis and glossitis, diarrhea, vomiting, abdominal pain, manifestations of involvement of the central nervous system, anemia and dermatitis. The author states that by the personal application of the principles of treatment outlined, the mortality rate of the 125 severely diseased pellagrins was lowered (from 54 per cent in an earlier series) to 6 per cent. Pellagra could not be considered the sole cause of death in any one of the eight patients who died, as each had extensive involvement of vital organs by other disease processes. In nearly every instance the pathologic changes of fatal disease other than pellagra were ample explanation for death. In four of the cases the pellagrous lesions had healed prior to death.

President's Page

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THE FAMILY PHYSICIAN

The statement is frequently made that the family physician is disappearing—that he is being supplanted by clinics and specialists. If this is true it is extremely unfortunate, because no one is more intimately associated with individuals and families and groups of people than the family physician.

But let us examine the statement about his disappearance—let us examine it and try to make an analysis of the situation. In making this analysis, it appears that the most convenient way is to lay down one or two propositions, discuss them, and see what conclusions can be reached.

First Proposition: The disappearance or the non-disappearance of the family physician are eventualities that can be largely determined by the family physician himself.

If he does not wish to disappear he must have an accurate realization of the requirements of modern medicine. He must realize that he is living in an era of rapid change and no less rapid progress, and in order to adapt himself to the requirements and ~~necessities of this~~ new era he must advance, his advancement being based upon a clear conception of the functions of medicine which are to preserve health and prevent and cure diseases and abnormalities of human beings. Now those were the functions of medicine in the days of Hippocrates, but Hippocrates, even though he lived in the golden age of Pericles; even though he employed all the available knowledge of ancient Greece; even though he was endowed with wisdom, was not able to render the service required of the family physician thirty or forty years ago. Even so, the physician of forty years ago, or twenty years ago or even a few years ago, was not able to render the service required in the year 1935, because in these decades and in these years facts have taken the place of theories and logical, scientific medicine now occupies the professional citadel then partly held by the forces of empirical medicine.

What, then? Simply this: The family physician, if he wishes to keep his place, must be able and willing to render the service that modern medicine demands today.

Second Proposition: The physician must not only be as profound in the learning of his profession as he can be, but he must cultivate the sense and quality of wise discrimination. In doing this he ought to remember that the character, rapidity and sequence of symptoms and signs, plus an adequate physical examination are by far the most essential requirements in the investigation of disease and abnormality. He ought to remember that his most important equipment is in connection with his ability and disposition to think, to reason, to know; and in connection with his ability and disposition to employ his special senses. He who has such equipment carries with him the most invaluable means of performing the functions of his profession. He may be in the country or in the city, but no matter where he is he has the consciousness of knowing that preparation for the practice of medicine does not depend primarily upon locality or environment, but upon the preparation, aspirations, determination and industry of the individual physician.

The employment of instruments of precision is of great importance, but their employment is for the distinct purpose of adding to a sane and fundamental conception of the functions of the physician. They are not employed for the purpose of taking the place of fundamental preparation and fundamental procedures.

There have been great family physicians in the past, and they have contributed much to the unparalleled progress of medicine. Ephraim McDowell and Crawford W. Long; Beaumont, Loomis and Osler—these form a part of that illustrious galaxy, and joined with such men are thousands of others, even now, living in town and country, and all of them contributing to the efficiency of medicine and to the success and happiness of the human race.

THE JOURNAL
OF THE
Oklahoma State Medical Association

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DR. L. S. WILLOUR.....Editor-in-Chief
McAlester, Oklahoma.

DR. P. P. NESBITT.....Associate Editor
Medical Arts Building, Tulsa, Okla.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, 203 Ainsworth Building, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

MEDICAL CARE

It is quite evident that the subject of medical care as a part of the program for social security will of necessity be considered by the physicians of this country. A "hands off" attitude will not solve the problem, as it appears certain that there will be some modification of the present plan. If a change is to come the medical profession must have some very definite ideas as to how the problem should be handled and be prepared to supervise its institution, development and operation.

Compulsory sickness insurance will not be a part of the Wagner Bill when reported from the committee; however, it is being attempted in many states and may in the near future become a part of the national program.

This subject will be discussed by Dr. Leland before the House of Delegates at their meeting Monday evening and it is important that every delegate hear this man who has more information on the subject than any other person connected with organized medicine. Dr. Leland will also appear before the General Session Tuesday morning and will give to the profession of the state the very latest information along this line.

Editorial Notes—Personal and General

DR. JOHN A. HATCHETT, Oklahoma City, is reported ill at his home.

DR. D. L. PERRY, Cushing, has been appointed Payne County health superintendent.

DR. F. H. NORWOOD, Prague, has been appointed health officer for Lincoln County.

DR. G. H. STAGNER, Erick, who has been ill for the past few weeks, is reported improving.

DR. CATHERINE BRYDIA, Ada, has been appointed county health officer of Pontotoc County.

DR. J. C. REMBERT, Okmulgee, has been appointed county superintendent of health of Okmulgee County.

DR. W. A. TOLLESON, Eufaula, who has been confined to the Oklahoma Baptist Hospital at Muskogee with a broken ankle, has returned to his home.

News of the County Medical Societies

WOODWARD COUNTY MEDICAL SOCIETY held their regular meeting April 9th at Woodward and the following program was presented:

Dinner at seven.

Woman's County Auxiliary meeting.

Scientific program:

"Low Back Strain," Dr. Chas. Rombold, Wichita.

"Coronary Disease," Dr. Fred McEwen, Wichita.

"Hemorrhoids, Infected Ducts," Dr. Claude Tucker, Wichita.

General Discussion, Dr. Hibbard, Wichita

ANNOUNCEMENT

Academy of Physical Medicine. Annual Meeting June 12 and 13. The Claridge Hotel, Atlantic City, New Jersey. For further information address Arthur H. Ring, M.D., Secretary-Treasurer, Arlington, Mass.

DOCTOR NEWTON RECTOR

Dr. Newton Rector, pioneer physician of Hennessey, age 96, died March 18, 1935, after a short illness. He was born September 12, 1838, near Chillicothe, Ross County, Ohio. His early education was received in Illinois. He enlisted in the war between the states in 1862, and upon being injured was sent to a hospital at Nashville, Tenn., where he became an assistant to the surgeon in charge, while convalescing. This experience inspired him to study medicine, which he did, graduating from Nashville Medical College in 1874. In 1889 Dr. Rector came to Hennessey where he remained until the time of his death.

Burial was in the Hennessey cemetery.

DOCTOR CHARLES W. AUSTIN

Dr. C. W. Austin, 74 years of age, physician of Mangum, died April 3rd, after a serious illness of several weeks.

Dr. Austin was born in Tennessee, December 14, 1860. He was reared on a plantation in Tennessee where he received his preliminary education in the public schools. He was graduated from Hardin College at Savannah. He attended the Memphis Hospital Medical College from which he graduated in 1895. He began his practice of medicine in Lowryville, Tenn. He came to Granite in 1901, moving to Mangum in 1919, where he remained until the time of his death.

Dr. Austin is survived by his wife and four sons.

Interment was in the Granite cemetery.

THE TRUE ECONOMY OF DEXTRI-MALTOSE

It is interesting to note that a fair average of the length of time an infant receives Dextri-Maltose is five months: That these five months are the most critical of the baby's life: That the difference in cost to the mother between Dextri-Maltose and the very cheapest carbohydrate, at most is only $6 for this entire period—a few cents a day: That, in the end, it costs the mother less to employ regular medical attendance for her baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby eventually requiring the most costly medical attendance.

THE STATUS OF KIDNEYS IN ALKALOSIS

Edmund H. Berger and Melvin W. Binger, Rochester, Minn. (Journal A. M. A., April 20, 1935), studied seven cases in which there were definite symptoms and serologic evidences of alkalosis following intensive use of alkali in the treatment of peptic ulcer. The patients were men between thirty and forty-nine years of age, with the exception of one who was seventy. Five patients had duodenal ulcers, one a perforating carcinoma of the stomach and in one an ulcer was not demonstrable. None had a previous history of nephritis. The blood pressure was normal in six. A mild to moderate degree of anemia was present in five cases. Five of the patients were admitted to the hospital in a state of alkalosis, which had followed the daily ingestion of from 15 to 60 Gm. of alkali for from two to four months. In two cases alkalosis developed in the hospital while the patients were on a modified Sippy regimen, receiving about 14 to 16 Gm. of alkali daily. The symptoms of distaste for milk, anorexia, nausea and vomiting, weakness, nervousness, mental confusion, dull steady headache, polydipsia and polyuria, numbness and tingling, cramps and, in several instances, tetany were quite outstanding in these cases. Other evidence of renal injury was denoted by protein, casts or erythrocytes in the urine. The possibility of alkalosis in the treatment of peptic ulcer should be kept in mind constantly. The phenomenon usually comes on gradually. The symptoms of distaste for milk, of headache and of weakness are constant, and they occur early. They are noted in the period of compensated alkalosis prior to the characteristic changes in the chemistry of the blood that follow. The other symptoms referred to appear later. Impaired renal function was demonstrated in all the cases during alkalosis. Two of the patients had definitely associated vascular changes. The status of the kidneys should be determined in each case before the patient is placed on alkaline powders. If impairment exists, alkaline treatment will probably be unsatisfactory. In these cases alkalosis may be rectified by smaller doses of alkalis or by replacement of such alkalis with mucin or tribasic calcium phosphate. However, the administration of these substances may result in toxemia. In one case renal studies gave normal results prior to and following alkalosis, yet with the ingestion of alkalis the carbon dioxide combining power rose to 70 volumes per cent and there was definite renal insufficiency. The development of alkalosis and renal insufficiency in another case cannot be explained by the assumption of a previous renal lesion for, subsequent to toxemia, the patient had normal renal function. The kidney has many functions, and it may be normal in one and deficient in another of these functions. The authors believe that in the presence of renal insufficiency, the threshold of safety is less, and that alkalosis is more easily produced in the presence of a pre-existing renal injury and that renal injury is increased concurrently with alkalosis, and thus a vicious cycle is set up. Neither basic nor acid salts can be administered with impunity in the presence of renal impairment. In the presence of normal renal function, the buffer mechanism maintaining the acid base equilibrium can absorb the assault of either acidifying or basic salts with little or no variation. The liver plays an important part in maintaining the acid-base equilibrium and in the presence of hepatic insufficiency, this is much more easily disturbed, as is evidenced by the intolerance, in cases of cirrhosis, to ingestion of either acid or basic salts.

SPONTANEOUS HEMOPNEUMOTHORAX: CASE

In a case of spontaneous hemopneumothorax, with recovery, in a young man, and thirteen collected cases from the literature, Joseph L. Frey, New York (Journal A. M. A., April 20, 1935), finds that no definite etiology is demonstrable, but three of the previously reported cases point strongly to a torn pleural adhesion and a ruptured emphysematous bulla or bleb as the cause. All cases reported, including the present one, occurred in the male. Aspiration of the blood is the procedure of choice.

PROGRAM

FORTY-THIRD ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 13, 14, 15, 1935

Meeting Place—All meetings will be held in the Skirvin Hotel. Telephone, local (Oklahoma City) 2-1251; L. D. 122.

Registration—Rose Room, thirteenth floor, Skirvin Hotel. Please see that you are in good standing for 1935 before attempting to register.

Council—Will meet Monday, May 13th, 3:00 P.M., for the transaction of business affairs in Dr. Willour's room. After that on call of the body.

House of Delegates—Will meet Monday, May 13th, 7:30 P.M., Empire Room, mezzanine floor, and at 8:00 A.M., Tuesday, May 14th, same place.

Delegates—Should present their credentials to the Credentials Committee, Registration desk, thirteenth floor, prior to this meeting.

Credentials Committee—Doctors McLain Rogers, Clinton; W. A. Howard, Chelsea.

Oklahoma City Pediatric Society—Will meet Monday, May 13th, Children's Hospital and Crystal Room, Skirvin Hotel.

Guests of Honor—Dr. Chas. M. Pearce, Oklahoma City; Dr. F. R. Teachenor, Kansas City, Mo.; Dr. R. G. Leland, Chicago; Dr. Max Thorek, Chicago; Dr. M. Edward Davis, Chicago.

Medical Reserve Corps Dinner—Tuesday, May 14th, 6:00 P.M., Skirvin Hotel. Colonel E. A. Keys, Chief of the Staff of the 95th Division, will be the guest speaker. Reservations should be made through Dr. S. F. Wildman, Medical Arts Building, and Major W. B. Kenworthy, Federal Building, Oklahoma City.

Commercial and Scientific Exhibits will be placed in the Rose Room, 13th floor.

Discussion of Papers—Every physician proposing to open the discussion of any paper should attempt to secure a copy of same for his information before the meeting.

Telephone Service—Those expecting telephone calls should place their probable location at the telephone office on the ground floor.

GOLF

MONDAY, MAY 13TH

Annual Tournament, Oklahoma City Golf and Country Club (Nichols Hills), starting at 9:00 A.M. Transportation from the Skirvin Hotel will be provided. All green fees paid.

TUESDAY, MAY 14TH, AND WEDNESDAY, MAY 15TH

All members of the State Medical Association may play at any of the following courses, green fees paid by person playing:

Oklahoma City Golf and Country Club.
Twin Hills Golf Club.
Edgemere Golf Course.
Lakeside Country Club.
Lincoln Park Golf Course.

Committee—Drs. Leo F. Cailey and Wayman J. Thompson.

Prizes donated by Oklahoma City business firms.

GENERAL SCIENTIFIC SECTION

General Scientific Sections will be held, beginning at 8:45 A.M., in the Venetian Room, thirteenth floor:

TUESDAY, MAY 14TH

8:45 to 9:30 A.M.—Moving pictures.

9:30 to 10:00 A.M.—"Public Health and Organized Medicine in the State of Oklahoma"—Dr. Charles M. Pearce, State Health Commissioner, Oklahoma City.

10:00 to 11:00 A.M.—"The Management of Brain Injury"—Dr. F. R. Teachenor, Kansas City, Mo.

11:00 to 12:00 A.M.—"Changes Confronting Modern Medicine"—Dr. R. G. Leland, Chicago.

WEDNESDAY, MAY 15TH

8:45 to 9:30 A.M.—Moving pictures.

9:30 to 10:00 A.M.—Memorial Ceremony.

10:00 to 11:00 A.M.—"Modern Trend in Surgery"—Dr. Max Thorek, Chicago.

11:00 to 12:00 A.M.—"Treatment of Toxemia Late in Pregnancy"—Dr. M. Edward Davis, Chicago.

GENERAL MEETING

TUESDAY, MAY 14TH

8:00 P.M.

Empire Room, mezzanine floor, Skirvin Hotel, Dr. Henry H. Turner, General Chairman, Presiding.

Invocation—Rev. A. G. Williamson, President, Oklahoma City University.

Introduction of Guests—Dr. Henry H. Turner.

Address of Welcome—Dr. Rex Boland, President, Oklahoma County Medical Society.

Response—Dr. James C. Johnston, McAlester.

Introduction of President-Elect—Dr. LeRoy Long, Oklahoma City, retiring President.

President's Address—Dr. L. H. Ritzhaupt, Guthrie.

9:30 P. M.

President's Reception and Dance—Venetian Room, thirteenth floor.

MEMORIAL CEREMONY

WEDNESDAY, MAY 15TH

9:30-10:00 A.M.

Dr. Everett S. Lain, Presiding

Invocation—Rev. John R. Abernethy, D. D., Pastor Epworth Methodist Church, Oklahoma City.

Solo—Dr. Roy Maxwell, Oklahoma City.

Report of the Necrology Committee—Dr. A. S. Risser, Chairman, Blackwell.

Memorial Address—Dr. Robert M. Anderson, Shawnee.

Musical Number—Violin Obligato—Mrs. Ray Edwin Miles; Mr. Edwin A. Flinn, accompanist, Oklahoma City.

Benediction.

WOMAN'S AUXILIARY

Message From the State President.

Oklahoma City is making plans for the entertainment of the wives of Oklahoma's doctors at the annual meeting, May 13, 14 and 15. The business meeting on Tuesday at 10:00 A.M. is open to all visiting doctors' wives. If you have no county auxiliary you may become a member-at-large if you wish. The visit to Nan Sheet's Studio will be a great treat for she has recently added a new wing so as to house a large exhibit. The tea will be a delightful affair, I am sure. All visiting wives will be guests at the luncheon on Tuesday. Please register at the Skirvin Hotel when you arrive so our hostess will be able to estimate the number to be entertained. You will receive tickets for the social events at the registration desk.

HATTIE B. ROWLAND.

PROGRAM

MONDAY, MAY 13TH

Registration, Skirvin Hotel Mezzanine Floor.

TUESDAY, MAY 14TH

9:00 A.M.—Meeting of the State Executive Board, Skirvin Hotel.

1:00 P.M. Luncheon, Oklahoma-University Club.

2:00 P.M. Visit to Nan Sheet's Art Studio, 2810 N. Walker.

4:00 to 6:00 P. M. Tea in the home of Mrs. A. L. Blesh, 920 N. W. 20th Street.

9:00 P.M. President's Reception, Skirvin Hotel.

WEDNESDAY, MAY 15TH

1:00 P.M. State Executive Board Luncheon, Y. W. C. A.

SECTIONS

All Sections will meet at 1:30 P.M., Tuesday, May 14th, and at the same hour on Wednesday, May 15. Meeting places will be as follows:

Surgery—Venetian Room—on the roof.

Medicine—Crystal Room — mezzanine floor.

Obstetrics and Pediatrics—Empire Room—mezzanine floor.

Eye, Ear, Nose and Throat—Wilson Room—mezzanine floor.

Urology and Dermatology—Parlor G—mezzanine floor.

OKLAHOMA PEDIATRIC SOCIETY

MONDAY, MAY 13TH

President—C. V. RICE, Muskogee.

Secretary—BEN H. NICHOLSON, Oklahoma City.

Morning Session
(9:00 A. M.)
University Hospital

"Presentation of Cases"—WENDELL SMITH and MARY ELLA GEORGE, Oklahoma City.

"Clinical Pathological Conference"—FANNIE LOU BRITTAIN-LENEY and HUGH JETER, Oklahoma City.

"Clinical Pathological Conference"—GEORGE GARRISON and HUGH JETER, Oklahoma City.

12:30 P.M. Round Table Luncheon—Crystal Room, Skirvin Hotel.

"The State Pediatric Society and the American Academy of Pediatrics Need Each Other"—C. H. HALL, Oklahoma City.

"Economics and the Practice of Pediatrics"—CARROLL M. POUNDERS, Oklahoma City, assisted by BRUCE KNICKERBOCKER, Dallas.

Afternoon Session
(2:00 P. M.)
Crystal Room, Skirvin Hotel

"President's Address—C. V. RICE, Muskogee.

"Nutrition of the New Born"—J. B. SNOW, Oklahoma City. Discussion opened by RALPH BOWEN, Oklahoma City, and C. T. HINSHAW, Wichita, Kansas.

"Convulsions of the New Born"—HUGH GRAHAM, *Tulsa.* Discussion opened by T. H. MCCARLEY, McAlester, and R. J. REICHERT, Moore.

"Habit Training of the Infant"—A. L. SALOMON, Oklahoma City. Discussion opened by COYNE CAMPBELL, Oklahoma City, and F. L. MENEHAN, Wichita, Kansas.

"Hemorrhagic Problems and Jaundice of the New Born"—ED. C. WHITE, Muskogee. Discussion opened by JOHN R. CALLAWAY, Pauls Valley, and FRANK LATTIMORE, Kingfisher.

"Principles Involved in the Surgical Diseases of the New Born"—JOHN BURTON, Oklahoma City. Discussion opened by GEORGE KIMBALL and GEORGE MECHLING, Oklahoma City.

ELECTION OF OFFICERS

(Papers will be limited to 10 minutes, opening discussions to 5 minutes each and general discussions to 3 minutes.)

SECTION ON GENERAL SURGERY

Venetian Room—Thirteenth Floor

Chairman—RAYMOND L. MURDOCH, Oklahoma City.

Vice-Chairman—H. D. MURDOCK, Tulsa.

Secretary—N. W. MILLS, Snomac.

TUESDAY, MAY 14TH

1.15 P.M.

"Chairman's Address—*"Cancer of the Colon and Rectum"*—RAYMOND L. MURDOCH, Oklahoma City.

"Cancer of the Breast"—FRED CRONK, Tulsa.

"Points in the Diagnosis of Cancer" (Lantern Slides)—B. B. COKER, Durant.

"X-Ray and Radium Treatment of Cancer"—E. S. LAIN and MARION M. ROLAND, Oklahoma City.

"Surgical Treatment and Management of Cancer Cases"—PAT FITE, Muskogee.

"Diagnosis and Treatment of Ano-Rectal Diseases" (Moving Pictures)—FRED CAMPBELL, Kansas City, Mo.

"Congenital Anomalies of the Rectum and Colon"—V. K. ALLEN, Tulsa. Discussion by FRED CAMPBELL, Kansas City, Mo.

"Colles Fractures"—A. RAY WILEY, Tulsa. Discussion by EARL MCBRIDE, Oklahoma City; J. J. BATCHELOR, Oklahoma City; J. E. HARBISON, Oklahoma City.

"Hysterectomy—A Comparison of the Vaginal and Abdominal Types"—(Lantern Slides)—F. A. HUDSON, Enid. Discussion by A. R. SUGG, Ada; M. E. STOUT, Oklahoma City; G. K. DICKSON, Oklahoma City.

"Toxic Goiter"—J. C. BROGDEN, Tulsa. Discussion by R. M. HOWARD, *Oklahoma* City; LEROY D. LONG, Oklahoma City.

"Appendicitis in Children"—A. S. RISSER, Blackwell. Discussion by C. M. POUNDERS, Oklahoma City; J. L. PATTERSON, Duncan.

"Present Status of Lung Compression and the Treatment of Pulmonary Tuberculosis"—MCLAIN ROGERS, Clinton. Discussion by HORACE REED, Oklahoma City; P. M. MCNEILL, Oklahoma City.

"Electro-Surgical Obliteration of Gallbladder vs. Classical Cholecystectomy" (Motion Pictures and Lantern Slides)—MAX THOREK, Chicago. Note: Dr. Thorek's presentation continued to the first afternoon hour on Wednesday, if necessary, with a re-run of movie film if desired.

WEDNESDAY, MAY 15TH

1:15 P.M.

"Reducing the Mortality Rate in Cases of Perforated Appendices"—J. T. COLWICK, Durant. Discussion by F. L. CARSON, Shawnee; C. E. CLYMER and H. D. COLLINS, Oklahoma City.

"Technical Points in the Prevention of Recurrence in Herniotomy"—R. A. WOOLSEY, St. Louis, Mo.

"Epigastric Hernia—Case Report With Strangulated Stomach Wall"—H. L. FARRIS, Tulsa. Discussion of hernia papers by ROY EMANUEL, Chickasha; CURT VON WEDEL, Oklahoma City.

"A Mask of Maskers—Duodenal Ulcer vs. Perforation"—JOHN PERRY, Tulsa. Discussion by A. W. WHITE, Oklahoma City; RALPH MCGILL, Tulsa.

"Bone Grafts in the Upper Extremities" (Lantern Slides)—W. K. WEST, Oklahoma City. Discussion by FRANK A. STUART, Tulsa.

"Report on Series of Trans-Urethral Prostatic Resection"—HENRY S. BROWNE, Tulsa. Discussion by R. H. AKIN, Oklahoma City.

"Subtotal vs Complete Hysterectomy"—HUGH JONES, Oklahoma City. Discussion by L. E. LAMB, Clinton; GRIDER PENICK, Oklahoma City.

Brief Summaries of the Indications for the Anesthetics, as follows:

Avertin (per rectum)—FRED WOODSON, Tulsa.

Spinal Anesthetics—ROSCOE WALKER, Pawhuska.

Cyclopropane (Inhalation) — GEORGE MECHLING, Oklahoma City.

Ethyl Chloride (Inhalation)—A. L. GUTHRIE, Oklahoma City.

Evipal (Intravenous)—J. H. ROBINSON, Oklahoma City.

Nupercaine (Infiltration)—F. M. LINGENFELTER, Oklahoma City.

Ether (Inhalation)—LEROY LONG, SR., Oklahoma City.

Note: Reading time for essayists with individual papers, 12 to 15 minutes; a copy should be sent at once to the first doctor listed to discuss it.

SECTION ON GENERAL MEDICINE

Crystal Room—Mezzanine Floor

TUESDAY, MAY 14TH

1:30 P.M.

Chairman—F. G. DORWART, Muskogee.

Vice-Chairman—BERNARD L. BRANLEY, Tulsa.

Secretary—S. C. SHEPARD, Tulsa.

1:30 Chairman's Address—F. C. DORWART, Muskogee.

1:45 *"Pernicious Anemia"*—GEORGE E. KNAPPENBERGER, Kansas City, Mo.

2:30 *"Hyperpyrexia As a Therapeutic Measure"*—S. C. SHEPARD, Tulsa.

3:00 *"Pulmonary Heart Diseases"*—HOMER RUPRECHT, Tulsa.

3:30 *"Peptic Ulcer"*—FRED H. CLARK, El Reno.

4:00 *"Preliminary Observations on Vitamin A Deficiency as Shown by Studies With Visual Photometer"* (Lantern Slides)—IRA O. PARKS, Muskogee.

4:30 *"Silicosis"*—R. M. BOLLINGER, Henryetta.

WEDNESDAY, MAY 15TH

1:30 P.M.

1:30 *"Tuberculosis From General Practitioner's Standpoint"*—R. M. SHEPARD, Tulsa.

2:00 *"Dual Nature of Intractable Asthma"*—RAY M. BALYEAT, Oklahoma City.

2:30 *"Treatment of Arthritis by Specific Vaccines"*—E. GOLDFAIN, Oklahoma City.

SECTION ON EYE, EAR, NOSE AND THROAT

Wilson Room—Mezzanine Floor

TUESDAY, MAY 14TH

1:30 P.M.

Chairman—HENRY S. BROWNE, Ponca City.

Vice-Chairman — WILLIAM MILLER, Guthrie.

Secretary—E. GORDON FERGUSON, Oklahoma City.

Chairman's Address: *"Some Observations on the Changing Times"*—HENRY S. BROWNE, Ponca City.

"Convergence Insufficiency: Etiology, Symptoms and Treatment"—A. W. McALESTER, III, Kansas City, Mo.

"Sympathetic Ophthalmia"—CHAS. H. HARALSON, Tulsa.

"Serpiginous Ulcer" — K. G. PARKS, Oklahoma City.

"Prevention of Infection"—C. W. WILLIAMS, Pawhuska.

WEDNESDAY, MAY 15TH
1:30 P.M.

"Cranial Nerve Signs of Intra-Cranial Pathology"—HARRY WILKINS, Oklahoma City.

"Chronic Glaucoma" or *"Tuberculosis of the Eye"*—M. K. THOMPSON, Muskogee.

"Acute Nasal Sinusitis"—U. C. BOON, Chickasha.

"Tonsillectomy, Its Common Problems As Seen by the General Practitioner After Frequent Removal"—R. E. ROBERTS, Stillwater.

SECTION ON OBSTETRICS AND PEDIATRICS

Empire Room—Mezzanine Floor

TUESDAY, MAY 14TH

Chairman—J. B. ESKRIDGE, JR., Oklahoma City.

Vice-Chairman—HUGH EVANS, Tulsa.

Secretary—GEO. H. HARRISON, Oklahoma City.

"Tuberculosis Complicated by Pregnancy"—J. T. WOODBURN, Muskogee. Discussion by E. P. ALLEN, Oklahoma City.

"Clinical Analysis of 100 Cases of Convulsive Eclampsia"—DICK LOWRY, Oklahoma City. Discussion by G. R. OSBORNE, Tulsa.

"Diagnosis and Treatment of Hemorrhage Late in Pregnancy"—M. EDWARD DAVIS, University of Chicago, Chicago, Ill.

"Sterility"—P. N. CHARBONNET, Tulsa. Discussion by W. W. WELLS, Oklahoma City.

"The Value of Prenatal and Postnatal Care"—J. C. WAGNER, Ponca City. Discussion by FLOYD GRAY, Oklahoma City.

"Abdominal Pain in Pregnancy"—M. J. SERWER, Oklahoma City. Discussion by L. G. NEAL, Ponca City.

"Complications of Posterior Position"—CARL SIMPSON, Tulsa. Discussion by CHAS. E. WHITE, Muskogee.

WEDNESDAY, MAY 15TH

'Diabetes Mellitus"—LAVERNE HAYES, Tulsa. Discussion by FANNIE LOU BRITTAIN LENEY, Oklahoma City.

"Thymus in Children"—HUGH GRAHAM, Tulsa. Discussion by G. H. GARRISON, Oklahoma City.

"Blood Dyscrasias in Childhood"—HUGH JETER, Oklahoma City. Discussion by F. S. ETTER, Bartlesville.

"Diarrhea of Children"—W. M. TAYLOR, Oklahoma City. Discussion by E. R. BRADLEY, Tulsa.

SECTION ON UROLOGY, SYPHILOLOGY AND DERMATOLOGY

Parlor G—Mezzanine Floor

TUESDAY, MAY 14TH
1:30 P.M.

Chairman—MARQUE O. NELSON, Tulsa.

Vice-Chairman—CHAS. J. WOOD, Tulsa.

Secretary—ROBERT H. AKIN, Oklahoma City.

"Symposium"—*"Lower Urinary Tract."*

"Treatment of Acute Gonorrhea by the General Practitioner"—J WORRALL HENRY, Anadarko.

"Some Facts in the Care and Treatment of Prostatitis"—T. O. CRAWFORD, Bartlesville.

"Stricture of the Urethra" (A Case Report, Extravasation of Urine, Complicated by Gangrene)—STANLEY F. WILDMAN, Oklahoma City.

"Important Features in Urological Surgery of the Posterior Urethra, Occasionally Overlooked"—ELIJAH SULLIVAN, Oklahoma City.

DISCUSSION

"Symposium"—*"Upper Urinary Tract."*

"Urological Methods in the Treatment of Nephritis or Hypertension"—BASIL A. HAYES, Oklahoma City.

"The Differential Diagnosis of Stones in the Upper Urinary Tract"—E. HALSELL FITE, Muskogee.

DISCUSSION

"The Venereal Triad"—FLOYD WARTERFIELD and S. D. NEELY, Muskogee.

DISCUSSION

WEDNESDAY, MAY 15TH

Chairman's Address: *"Observations*

Bearing on the Use of Ultra-violet Rays and Sunlight"—MARQUE O. NELSON, Tulsa.

"*Clinical Aspects and Treatment of Cancer of the Skin*"—RICHARD L. SUTTON, JR., Kansas City, Mo.

"*Contact Dermatitis*"—ROBT. L. HOWARD, Oklahoma City.

(Foot Note: Following scientific section, Dr. Richard L. Sutton will show his moving picture on his "Arctic Bear Hunt.")

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COMMITTEE REPORTS

These reports are made in compliance with provisions of the Constitution and By-Laws which call for publication of such matter in the issue of the Journal preceding the Annual Session.

REPORT OF THE COMMITTEE OF MEDICAL EDUCATION AND HOSPITALS

None of the sciences comprising medicine, no diagnostic procedure nor method of treatment is probably attracting more attention today than is education in general. This is particularly true of the higher and more specialized divisions. Methods, plans, and objectives are being scrutinized and criticized; traditions and precedents are being set aside and more attention is being paid to the needs and capacities of the individual student, plus the apportioned cost of education.

It is quite generally expressed that there are too many physicians and that the number of medical students must be reduced, yet it is obvious that the profession requires each year new recruits who are better trained than the previous ones. In spite of the constant cry for the lowering of educational expense, millions are appropriated for comparatively useless purposes. There must be a constant advance in medical education to keep pace with the constant advance in medical research. Hence society, and the medical profession in particular, is facing a difficult problem.

The correct ratio of physicians to the population is difficult to determine; there is certainly, at present, a great variation as to localities over the world. In the United States, in recent statistics given by Dr. Harold Rypin in the Federation Bulletin of the State Medical Board of the United States, September, 1933, there are 156,440 licensed physicians, or one for every 780 persons. In the state of Oklahoma there is one for every 1000 persons; in Tulsa one for every 560; in Oklahoma City one for every 400 persons. In some of the rural communities the ratio is very low. As to the European countries; in England, Dr. Rypin reports, one doctor for every 1490 persons; in France one for every 1690 persons; and in Sweden one for every 2890 persons. At the present rate of increase the number of physicians in the United States in 1940 will be 171,700, in 1980 about 211,800, as reported by Raymond Walters, President of the University of Cincinnati.

This condition has given rise to considerable study and various opinions have been expressed as to the necessary attitude and procedure for obtaining and maintaining a proper ratio. The committee on the cost of medical care in its bulletin in 1932 states: "There should be more effective control over the type and number of physicians trained." Dr. Walter Berring, President of the A. M. A., stated in a paper read in 1933: "It is evident that doctors are being trained without any consideration of the possible consumer requirements." Dr. Rapplaye of Columbia University advocates the restriction of the number of students in medical schools rather than a reduction in the number of medical schools. Dr. Hugh Cabot of the Mayo Clinic feels that if a restriction is brought about by the medical schools it should be done not on a vocational basis but on an educational basis. The latter sentiment, together with the probable advisability of reducing the number of medical schools, seemed to be the common attitude expressed at the recent annual meeting of the Council on Medical Education and Hospitals, which meeting it was the privilege of the chairman of this committee to attend. It was also noted during the meeting that much interest was manifested in a discussion of the question of finding additional outlet for physicians.

Attention was called to the number of hospitals over the country that do not have graduate physicians in charge of the x-ray or laboratory departments. In many institutions anesthetics are given by nurses or non-medical individuals; it is obvious that the practice of anesthesiology is the practice of medicine and deals with dangerous drugs. Emphasis was given to the fact that a surgeon is not an expert x-ray man, that radiology is not a simple laboratory procedure as it deals with patients and not with specimens and that the radiologist is entitled to the support of the hospital and should have the same opportunity as any physician and these profits or expect fees should not be appropriated by the hospital.

Reports showed the hospitals in rural communities to be in a deplorable condition as to their pathological and radiological departments.

There are 118 recognized hospitals in the state of Oklahoma; 18 allied institutions that are not registered as such. Of the 118 hospitals, 87 have clinical laboratories; 50, or 24% of which are under the direction of a physician; 35 are under direction of other than a physician; 33 have no clinical or pathological laboratories at all. Of the total number of hospitals 96 have x-ray departments, of which 57, or 49%, are under the direction of a graduate physician; 20 hospitals have no x-ray department. Physiotherapy, which is recognized generally as being an essential department in therapeutics, is found in 32, or 25.7% of the total number of hospitals. There has been no increase in the number of physiotherapy departments in the state since 1927.

In February, 1934, $24,000 was appropriated by the American Medical Association, following a meeting of the Council on Medical Education and Hospitals of the A. M. A. and the Executive Council of the Association of American Medical Colleges, for the purpose of undertaking a comprehensive study of medical education.

From the studies thus far it is evident that some schools are accepting more students than their circumstances justify; that some are deficient in either physical or clinical facilities which obviously may lead to further reduction in the number of recognized medical schools and hospitals.

Hence it is obvious:

1. That the total cost of medical education will automatically increase.

2. That the cost of education for each medical student will increase in greater proportion.

3. That the educational requirement will be in-

creased as a means of reducing the number of physicians in order to bring about a proper ratio of the number of physicians to the population.

4. That a higher standard of hospitals, particularly in the smaller communities, must be maintained, in order that medical graduates may be encouraged to locate in these communities and further to employ only graduate radiologists, anesthetists, and pathologists in their respective fields.

This is quite difficult in very small hospitals on account of the expense. To that end all physicians in towns and rural communities should endeavor to combine their interests in one hospital in order to furnish adequate support.

A well trained young physician hesitates to locate where he does not have available the facilities to practice medicine as he has been taught; as a result, in several localities those practicing the cults outnumber the medical men from 2-6 to 1, thereby encouraging and fostering the development of osteopathy and chiropractice by deserting the field.

The above statements are facts rather than mere conclusions and unite to form the great problem confronting the medical profession today.

This problem will be solved either automatically, to the great disadvantage of the profession, by political or other lay bodies, or by the profession itself. Since no political or other organization can have a full understanding of medical problems, it is necessary that the profession itself shall be properly informed and such effort as is necessary for the future protection of the medical profession and its members shall be carried out. This is based definitely on the system of medical education followed.

This committee urges a closer relationship between those in the independent practice of medicine, hospital authorities, and those directly occupied in teaching medicine in order that a better understanding may be had of the interdependence of all of these groups.

The committee therefore recommends that the committee on Medical Education and Hospitals of the Oklahoma State Medical Association be given additional powers with a reasonable expense account to make necessary investigations and with delegated authority to meet, if such can be arranged, with similar committees from the faculty of the School of Medicine and from the Oklahoma State Hospital Association, or that a special committee be elected to work under instructions from the Council in order to bring about a better understanding of the problems of medical education, looking toward a proper solution of this vital problem upon which the future of medicine depends. While this is a national question and much work is being done by national organizations, in the last analysis it resolves itself into a local problem.

ARTHUR W. WHITE,
T. H. McCARLEY,
R. M. ANDERSON,
Committee.

ANNUAL REPORT
of the
Secretary-Treasurer-Editor
April 30, 1934, to April 15, 1935.

To Members of the Oklahoma State Medical Association:

In conformity with the Constitution and By-Laws, I hereby submit the report of various transactions during the past year.

Detailed statements of all activities, financial transactions, duplicate deposit certificates and other business matters have been submitted to the Council for their audit.

Membership: On April 30, 1934, we had 1464, and on this date we have 1552.

Death of Physicians: This list will appear in the Report of the Committee on Necrology, published in the June Journal.

Medical Defense: The following cases have either been settled, dropped or disposed of in the following manner:

Settled:
Caddo County No. .....
Carter County No. 19915.
Osage County, No. .....

Pending:
Caddo County No. 9407.
Tulsa County, No. 60175.
Choctaw County, No. 8644.
Logan County, No. 1693.
Pontotoc County, No. .....

In addition to the above the following cases are now pending, the progress and status of which is unknown, as they are pending or dormant in the courts:

Blaine County, No. .....
Carter County, No. .....
Craig County, No. .....
Garvin County, No. .....
Hughes County, No. .....
Payne County, No. .....
Pottawatomie County, No. .....

Journal and Advertising: It is a pleasure to report that there has been considerable increase in our national advertising during the past year and this is due to the fact that the Cooperative Medical Advertising Bureau of the American Medical Association has found our Journal acceptable to more national advertisers. In the classified card section we have been giving our advertisers a little extra advertising space without cost to the advertiser. We are informed that there has been a better response from the membership in mentioning the Journal when answering advertisements. This is probably the principle feature that is increasing the amount of advertising that we have been able to secure.

The Journal has during the past year maintained its usual size. We have added a cover that has improved the appearance of the Journal. The scientific material has been of a character to compare well with other journals of the same size issued throughout the country. We have had a sufficient quantity of material so that it has not been necessary to ask the membership to make any special effort to contribute articles for publication.

Again I want to thank those who have had charge of the abstract department. Our material has been up-to-date and wonderfully well abstracted. This feature of the Journal is very popular among our readers. Let me insist upon your support to our advertisers so that the income from this source may continue to increase.

FIRST NATIONAL BANK
McAlester, Okla., April 16, 1935.

Dr. L. S. Willour, Secretary-Treasurer,
Oklahoma State Medical Association,
McAlester, Oklahoma.
Dear Dr. Willour:

This is to certify that according to our records, the following accounts reflected a credit balance, subject

to check, at the close of business April 15, 1935, as follows:

Oklahoma State Medical Association
General Fund $1,781.07
Medical Defense Fund 1,492.32

Yours very truly,

J. K. PEMBERTON,
Vice-President & Cashier.

AUDIT REPORT

Oklahoma State Medical Association
Dr. L. S. Willour, Secretary-Treasurer
McAlester, Oklahoma
For Period May 1, 1934, to April 15, 1935
By J. K. Pemberton
McAlester, Oklahoma

April 20, 1935.

Dr. LeRoy Long, President,
Oklahoma State Medical Association,
Medical Arts Building,
Oklahoma City, Oklahoma.

Dear Dr. Long:

Upon request, I have audited the books of account, records and investments of

Dr. L. S. Willour, Secretary-Treasurer,
Oklahoma State Medical Association,
McAlester, Oklahoma,

for the period beginning May 1, 1934, and ending April 15, 1935, and submit the following schedules, together with comments and supporting exhibits:

Cash receipts were traced to the bank through detailed check of items received, against deposit tickets as shown in the files of the bank. Cash expenditures and disbursements were checked against the bank records, all vouchers and checks were examined and compared with the original entries; endorsements scrutinized and found to be in order.

In company with Dr. L. S. Willour, Secretary-Treasurer, I have examined the following investments which are kept in a safety deposit box in The First National Bank, McAlester, Oklahoma, which box is in the name of The Oklahoma State Medical Association:

General Fund:

Fourth 4¼% Liberty Loan Bonds of 1933-38—		
Bond Nos.	Par Value	
E02629575	$1,000.00	
G02629577	1,000.00	
C02629573	1,000.00	
D02629574	1,000.00	$4,000.00
3¼% U. S. Treasury Bonds of 1944-46—		
95099K	1,000.00	
94180L	500.00	
94181A	500.00	2,000.00
Total General Fund Investments		$6,000.00

Medical Defense Fund:

3¼% U. S. Treasury Bonds of 1943-45—		
878J	1,000.00	
879K	1,000.00	
880L	1,000.00	
Total Medical Defense Fund Investments		$3,000.00

April 15th, 1935, and subsequent coupons are attached to the entire total of $9,000.00 bonds.

I find that all coupons clipped from the above bonds during the period covered by this audit have been properly accounted for in their respective accounts. April 15, 1935, coupons uncollected are as follows:

General Fund $117.50
Medical Defense Fund 48.75

The books of the Association are kept on an actual cash receipts and disbursements basis, and for that reason four items accrued, have not been included in the audit. However, three of these items were subsequently paid on April 16, 1935. These accounts are as follows:

West. Union Telegraph Co. $ 12.22 (pd. 4-16-35)
Hoffman-Speed Ptg. Co. 488.83 (pd. 4-16-35)
Bowman Stationery Co. 2.53 (pd. 4-16-35)
L. S. Willour, Salary accrued to 4-15-35 100.00

There is attached hereto and made a part hereof, Schedule of Accounts Receivable due the Association, from advertising, which are not included in the balance sheet.

I respectfully submit the foregoing audit and report for your information.

J. K. PEMBERTON,
Auditor.

The foregoing statement and audit is submitted as my report from May 1, 1934, to April 15, 1935.

L. S. WILLOUR,
Secretary-Treasurer-Editor.

BALANCE SHEET

April 15, 1934

Assets

Current Assets:		
First National Bank, McAlester, Oklahoma.		
General Fund	$1,772.07	
Medical Defense Fund	1,492.32	$ 3,264.39
Investments—U. S. Government Bonds:		
General Fund (Par Value)	6,000.00	
Defense Fund (Par Value)	3,000.00	9,000.00
		$12,264.39

Liabilities

Excess of Assets Over Liabilities:		
Balance April 30, 1934	$13,343.93	
Deduct:		
Excess of Expenditures over Income General Fund	2,529.75	
Add:		
Excess of Income over Expenditures Medical Defense Fund	1,450.21	12,264.39
		$12,264.39

CASH RECEIPTS AND DISBURSEMENTS

May 1, 1934 to April 15, 1935

General Fund:

Balance ..... $ 1,801.82

Receipts:

Advertising	$4,978.60
Memberships	4,624.00
Transfer from Medical Defense Fund	1,500.00
4th 4¼% Liberty Bond Redeemed (Called)	1,000.00
4th 4¼% Liberty Bond Sold	1,000.00
Premium Received on Liberty Bond Sold	15.00
Interest Received on Gov't Bonds	159.50
Notes Payable (Bor'w'd Money)	2,000.00
Total Receipts	$15,277.10
Total Cash to Account for	$17,078.92

Disbursements:

Dr. L. S. Willour, Salary to March 31, 1935, at $200.00 per Month	$2,400.00	
Oltha Shelton, Salary to April 15, 1935, at $125.00 per Month		1,562.50
Extra Office Salaries		25.00
Expense Annual Meeting		564.00
Council and Delegate Expense		500.01
Legislative Expense		910.24
Post-Graduate Expense		32.90
Cancer Study Expense		24.00
Refunds—Memberships		12.00
Printing Journal		5,408.02
Postage		177.46
Printing, Stationery and Office Supplies		147.22
Office Rent		232.50
Telephone and Telegraph		76.35
Press Clipping Bureau Service		36.00
Treasurer's Bond and Audit		75.00
U. S. Check Tax		2.40
Legal Expense		12.50
Miscellaneous Expense		40.03
Notes Payable—Paid		2,000.00
Interest on Borrowed Money		45.00
Purchase 3¼% U. S. Treasury Bond	$1,000.00	
Premium on 3¼% U. S. Treasury Bond	23.72	1,023.72
Total Disbursements		$15,306.85
Balance on Hand April 15, 1935		$ 1,772.07

Medical Defense Fund:

Balance April 30, 1934	$ 1,542.11

Receipts:

Fees Collected	$1,574.00	
Interest Rec'd—Gov't Bonds	63.75	1,637.75
Total Cash to Account for		$ 3,179.86

Disbursements:

Transfer to General Fund	$1,500.00	
Medical Defense—Members	187.50	
U. S. Check Tax	.04	
Total Disbursements		$ 1,687.54
Balance April 15, 1935		$ 1,492.32

CASH ON DEPOSIT
April 15, 1935
FIRST NATIONAL BANK
McAlester, Oklahoma

General Fund:

Balance as per records			$ 1,772.07
Add: Outstanding Checks	Number	Amount	
	3517	4.00	
	3574	1.00	
	4115	4.00	9.00
Bal. as per Bk. Stat. and Verification Letter			$ 1,781.07

Medical Defense Fund:

Balance as per Records	$ 1,492.32
Add: Outstanding Checks	None
Bal. as per Bk. Stat. and Verification Letter	$ 1,492.32

INCOME AND EXPENDITURES
May 1, 1934 to April 15, 1935

General Fund:

Income:

Advertising	$4,978.60	
Memberships	4,624.00	
Premium Received 4th 4¼% Liberty Bond Sold	15.00	
Interest Received—U. S. Gov't Bonds	159.00	
Total Income		$ 9,777.10

Expenditures:

Salary Secretary	2,400.00	
Salary Assistant Secretary	1,562.50	
Other Office Salaries	25.00	
Expense Annual Meeting	564.00	
Council and Delegate Expense	500.01	
Legislative Expense	910.24	
Post-Graduate Expense	32.90	
Cancer Study Expense	24.00	
Refunds—Memberships	12.00	
Printing Journal	5,408.02	
Postage	177.46	
Printing, Stationery and Office Supplies	147.22	
Office Rent	232.50	
Telephone and Telegraph	76.35	
Press Clipping Bureau Service	36.00	
Treasurer's Bond and Audit	75.00	
U. S. Check Tax	2.40	
Legal Expense	12.50	
Interest on Borrowed Money	45.00	
Premium Paid on 3¼% U. S. Treasury Bond Purchased	23.72	
Miscellaneous	40.03	
Total Expenditures		$12,306.85
Excess of Expenditures Over Income		2,529.75

Medical Defense Fund:

Income:

Fees	$1,574.00	
Interest Rec'd—U. S. Gov't B'ds	63.75	
Total Income		$ 1,637.75

Expenditures:

Medical Defense Cases—Settlements	187.50	
U. S. Check Tax	.04	
Total Expenditures		$ 187.54
Excess of Income Over Expenditures		$ 1,450.21

ABSTRACTS .. REVIEWS .. COMMENTS AND CORRESPONDENCE

EYE, EAR, NOSE and THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Bldg., Tulsa

Congenital Coloboma of the Macula. Arnold Sorsby, London. The British Journal of Ophthalmology, February, 1935.

Infinite care in the correlation of the facts from about one hundred fifty-six different sources makes this manuscript outstanding. Skeletal defects are demonstrated by numerous x-ray pictures of the hands and feet of the cases reported. Fundus pictures, plain and in color, demonstrate and emphasize the points of greatest interest. Compilation of the historical data was rendered doubly difficult by the incompleteness of former cases recorded in the literature dating from 1866 up to the present time. Any ophthalmologist interested in this particular disease will find this publication is of incalculable value because of its completeness in all essential details. One part deals entirely with a single family of eight children and the father and mother. Each case is worked up carefully in great detail including the laboratory procedure which might have a bearing on the disease. To attempt a recapitulation of the publication would be imprudent. The summary of Sorsby is as follows:

1. The literature on congenital macular coloboma is reviewed, and from the sifted material, 20 cases of bilateral macular coloboma, 36 unilateral and three (possibly five) familial groups, are considered. There is nothing in the ophthalmoscopic appearances of the lesion which stamps any particular defect as definitely congenital, as opposed to lesions of postnatal origin.

2. Attention is drawn to cases in which macular coloboma was present in the same eye together with a typical choroidal coloboma, as also to cases in which macular coloboma was associated with other atypical colobomatous defects.

3. One suggestion that emerges is that non-pigmented colobomata tend to be deeply excavated whilst excavation in pigmented colobomata is relatively less marked.

4. It would appear that in addition to the recognized varieties of non-pigmented and pigmented macular coloboma, a third type, aptly described as a wheel-figure, has a fairly characteristic appearance. In this type the center is white and from it pigmented spokes radiate towards a pigmented rim.

5. Studies in the pathological anatomy of macular coloboma, though none of them conclusive, would appear to indicate that there is no basis for the belief that congenital macular colobomata are the result of intra-uterine inflammation.

6. A description is given of a familial group consisting of a mother and five children, all of whom showed bilateral pigmented macular coloboma. Associated with this defect was a rare skeletal abnormality known as apical dystrophy of hands and feet. In one of the patients, the condition of solitary kidney was present.

7. Attention is drawn to the studies of Landauer on the creeper fowl, a breed characterized by skeletal defects and ocular abnormalities. Consideration is also given to the work by Bagg and Little and their collaborators on the experimental production of hereditary defects in mice, the defects involving the eye, feet and kidney.

8. Arguments are advanced in favor of regarding macular coloboma as a localized choroideremia.

Metastatic Hypernephroma of the Tonsil. Menger and Arons. The Laryngoscope, September, 1934.

An uncommon occurrence is here reported. A male, age 63, after a months hospitalization following a suprapubic prostatectomy, was discharged from the hospital. About one and a half years later he was readmitted and a left nephrectomy was done. The pathological diagnosis was hypernephroma. Accompanying this report was an admonition for a follow-up on the case bearing in mind a possible matastasis to the lung. He was in the hospital for two keeks at this time. About two years later he reported to the authors with a chief complaint of a recurring sore throat which had been giving him trouble since he had had two teeth extracted under local anaesthesia, three weeks previously.

Examination of the throat revealed what appeared to be a Vincent's angina of the right tonsil. A smear showed a very large number of the specific organisms. The Wassermann was negative. The patient was accordingly treated for Vincent's angina. Two weeks later there was a mass on the cryptic surface of the tonsil about as large as the tonsil itself. The pathologists' report was: "Section is lined by stratified epithelium which is in part ulcerated by pressure of a growth underneath. The tumor is made up of irregular sheets of foamy cells with vacuolated cytoplasm and small, pale staining nuclei. Separating the cell groups are thin fibrous septa with very thin walled blood vessels. There is considerable hemorrhage throughout. Diagnosis: Hypernephroma, metastatic to the pharynx."

Coutard's treatment was inaugurated. The result was a complete disappearance of the metastatic right tonsil extending to the uvula. The authors state: "The reaction in irradiating the oral cavity is noted by a pseudodiphtheroid membrane which develops on the mucosa and the presence of a dermatitis which disappears in two or three weeks. The less severe earlier reactions are dryness of the mucous membrane of the mouth and pharynx, a disturbance or complete loss of taste, and dysphagia. These local complications are reduced and later complications are practically avoided by accurate technique, carefully measured and divided dosage."

They continue: "Records of a four-year period show that 28 per cent of the cases of carcinoma of the larynx, formerly considered incurable, have been cured by the Coutard method. In cases treated only by surgery, a cure of 6.6 per cent was obtained. Twenty-six per cent of the cases of carcinoma of the tonsil were cured by Coutard irradiation. Similar re-

sults were obtained in inoperable cases of carcinoma of the oral cavity, pharynx and larynx."

Precancerous Epitheliomatosis (Bowen's Disease) of the Palate and Fauces. Walter Howarth, London. The Journal of Laryngology and Otology, January, 1935.

Dermatosis with chronic atypical epithelial proliferation was first described by Bowen of Boston in 1912. He says that it is an affection of long standing, characterized clinically by the formation of single or multiple papulosquamous, eroded or crusty, hyperkeratotic tumor-like lesions. The age incidence is usually after forty-five years and a decade or two may pass before the lesion causes enough disturbance to have the patient consult a physician.

The first recorded case of occurrence on mucous membrane was on the vulva and was reported by M. Hudelo. The microscopical anatomy is summarized as follows: dyskeratosis in a hypertrophic epithelium; preponderance of intracellular odema over intercellular odema, resulting in the formation of a vacuole about the nucleus; numerous mitotic figures; clumping of large cells with giant nuclei and large nucleoli; retention of filaments of union and squamous cells to produce hyperkeratosis and parakeratosis; general confused appearance of the malphighian layer.

The author has searched the literature but has not found a recorded case of this disease in the mouth. He reports three cases occurring on the mucous membrane of the mouth, palate and fauces.

Case No. 1 was a male, age 56. When first seen in 1920 the whole left side of the cheek, soft palate, lips and floor of the mouth were covered with the lesion. The glands were not involved and the pathological report denied malignancy. The Wassermann was negative. This was treated with diathermic cauterization which controlled it temporarily. The latest reappearance was only a few months ago on the upper lip.

Case No. 2 was a male, age 55. For the past two years the condition of the patient's fauces had been noticed by his family physician but since it was causing no discomfort, nothing was done about it. When the condition became painful he consulted several throat specialists but the total of their advice was that the condition was not malignant, following a biopsy. When the patient came under the care of the author the lesion was treated with diathermic cauterization. The lesion cleared completely.

Case No. 3 was a male, age 58. The patient had seen the author six months previously for a growth in his throat. He was instructed to return for treatment but failed to show up at the appointed time. When he did appear the lesion had spread and looked decidedly malignant. Microscopic examination showed pathology similar to the other two cases. There was a glandular enlargement present. His teeth were in such a septic condition that he was sent to a dental surgeon for treatment. Diathermic cauterization was started and at the present the lesion is clearing up nicely.

This article closes with a discussion of the effect and possibilities of filterable viruses in these cases.

Cancer of the Larynx. Gabriel Tucker, M.D., Philadelphia. Archives of Otolaryngology, January, 1935.

Taking into consideration the fact that these two hundred cases of cancer of the larynx, seen at the bronchoscopic clinics of the University of Pennsylvania, were in many instances far advanced and that several physicians and roentgenologists attended, this article is representative of the methods of treatment and results of more than one physician and clinic.

In each case the usual careful routine examination was given, including a biopsy of the lesion when necessary, with no ill effects resulting.

Of the two hundred cases, one hundred ninety-six were white patients and only four were negroes. One hundred eighty-three were males. The smallest per cent occurred between the ages of twenty and thirty, increasing each decade, with the largest per cent occurring after the age of sixty years.

Forty-one per cent of the cases were attributed to vocal abuse, 25 per cent to the excessive use of tobacco and the result of a possible over-exposure to the roentgen rays, was doubtful.

Cancer developed in two cases where papillomas had recurred, also in two cases where keratosis and leukoplakia had been present and in one case granuloma formation preceded the appearance of squamous cell carcinoma.

Complicating and concurrent pathologic conditions of twenty cases are described as: cancer of the larynx with tuberculosis of the larynx and lungs; cancer of the larynx with tuberculosis of the lungs; cancer of the larynx with evidence of syphilitic infection; cancer of the larynx, pulmonary tuberculosis, constitutional syphilis and diabetes; cancer of the larynx and cancer of the esophagus, and cancer of the larynx, pulsion diverticulum of the esophagus and constitutional syphilis.

Hoarseness and local discomfort occurred in all cases, dyspnoea in 41 cases and dysphagia in 58 cases; pain was noted both local and referred only in the more advanced cases.

Fifty-nine and five-tenths per cent of the series were considered intrinsic in origin, with 28 per cent extrinsic and 12.5 per cent considered mixed cases. The latter would probably be classed as intrinsic, due to the overlapping of the extension of the lesion.

The proper surgical procedure was determined by the extent and location of the lesion. One hundred twelve cases were considered suitable for surgery. Only six patients refused operation.

In 58 cases laryngofissure was performed, with no mortality due to the operation; total laryngectomy was done in 31 cases with 3 post-operative deaths and in 17 cases partial laryngectomy was done with no deaths due to the operation. In every case irradiation was performed if there was a recurrence following surgery. Irradiation was given in 3 cases of extrinsic cancer where surgical treatment had not been done and 3 cases were reported cured, one for over three years.

The plea is made for early diagnosis and for further education of the public, to aid in lessening the dread disease of cancer of the larynx.

INTERNAL MEDICINE

Edited by L. J. Moorman, M.D., 1200 N. Walker, Oklahoma City; C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 N Walker, Oklahoma City

By HUGH JETER, M.D.

Sedimentation Time As An Aid in Differentiating Acute Appendicitis and Acute Salpingitis. C. T. Smith, A.B., M.D., F.A.C.P., Thelma Harper, A.B., and Anna Watson, A.B., Rocky Mount, N. C. Amer-

ican Journal of the Medical Sciences, Vol. 189, No. 3, March, 1935.

The authors have studied 19 cases of acute salpingitis and 38 cases of acute appendicitis and think that there is a suggestion that the sedimentation time may be of some value in differentiating these two conditions.

They believe the sedimentation time is likely to be prolonged during the first 48 hours after the onset in appendicitis and after the 48 hours a tendency for the time to be shortened. On the other hand, the time is not so prolonged, even in the 24-hour period immediately following the onset.

Various theories for the explanation are suggested. Different organisms causing the infection, and differences in the nervous mechanism are thought to be factors.

The Red Blood Cell of Man. Russell L. Haden, M.D., Head of Section on Medicine, Cleveland Clinic, Cleveland, Ohio, International Clinics, Vol. 1, March, 1935, Page 68.

The author gives a splendid review of the historical development of the present knowledge of the red cells, going back as far as Leeuwenkoek, who in 1673 first observed minute objects in his own blood. The probable reasons for the existence of the red cells. Theories, such as suggested by Hartridge, explaining why the cell is biconcave, are given. The origin of the cell and life history is shown and illustrated by a table. Certain variations in the size and shape as well as thickness, exist, namely: the sickle cell trait in negros; the cells of congenital hemalytic jaundice approach the spherical form; an hereditary oval cell anemia has been described, and it seems possible that there is an inherited abnormality of the stroma of the red cell in the erythroblastic anemia. "These conditions may be compared to albinism or alkoptonuria in that they represent inborn errors of development."

The following interesting data are given in simple table form:

1. Life history of the erythrocyte.
2. Measurements of the red cell of clinical value.
3. Normal measurements of red cells.
4. Clinical classification of anemia.
5. Criteria for determining specific changes or deficiencies in the red cells.
6. Blood findings in anemia due to acute hemorrhage.
7. Blood findings in anemia due to excessive hemolysis.
8. Blood findings in anemia due to depression of bone marrow function.
9. Blood findings in anemia due to deficiency of specific substances. This pertains to iron and liver deficiencies.

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SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Bldg., Oklahoma City.

Grave Familial Icterus of the New-Born (Erythroblastosis) Cured by Hemotherapy (Sur un Cas d'Ictere Grave Familial du Nouveau-ne Erythroblastose) Gueri par Hemotherapie). By M. Pehu and A. Brochier, Lyons, La Presse Medicale, December 12, 1934.

This is a synopsis of a report made at a meeting of the Paris Academy of Medicine December 4, 1934, prepared by Lucien Rouques:

The type of icterus is that described by Pfannenstiel. An anaylsis of the antecedents may suggest it. When it is suspected there should be a complete microscopic examination of the blood in order to determine whether there is an erythroblastosis.

The treatment is intramuscular or, better, intravenous injection of blood, the average amount approximating one one-hundredth the weight of the infant. Three or four injections, about two days apart, are usually necessary.

In the course of treatment it is indespensable to be "au courant" with the condition of the blood, the general state of the patient, and the intensity of the icterus.

In the case of the patient reported, recovery followed the employment of citrated blood. The authors make the interesting statement that it was the first observation in France of cure of grave familial icterus of the new-born by the injection of blood, but that a number of cures by the method have been reported from other countries. ("De nombreux cas de guerison par cette methode ont ete signales a l'etranger").

—LeRoy Long.

Erythema Nodosum and Nephritis Following Section of Bands in a Tuberculous Patient. "Erytheme Noueux et Nephrite Apres Section de Brides Chez une Tuberculeuse"). By F. Coste and J. Bernard. La Presse Medicale, December 12, 1934.

I am indebted to P. L. Marie for a synopsis of statements made by the reporters at a meeting of the Societe Medicale des Hopitaux on December 7, 1934,

Recalling that erythema nodosum secondary to a frank tuberculosis is rare, and that it had not been observed after the section of bands, a case is reported where, nine days after the operation, there was a brutal elevation of temperature with enanthematous angina followed the next day by a typical erythema nodosum. A week later there was an acute fluxionary nephritis ("une nephrite aigue fluxionnaire"), with a gross but transitory azotemia. The evolution was marked by grave general symptoms. There was finally a pulmonary perforation complicated immediately by a purulent effusion swarming with streptococci.

Attention is directed to the brutal expression from stump, due to the section of bands, and the massive dispersion of tuberculous antigens in the organism, which is a logical consequence.

The question of allergy is discussed, especially with reference to the sudden appearance of symptoms due to the presence of a streptococcic infection. ("- role declenchant de l'infection streptococcique").

Finally, coexisting or joined allergies ought to receive attention, whether tuberculo-streptococcic or other kinds. The work of Bordet concerning nonspecific allergy, and those of all other authors who have studied the Schwartzmann-Sanarelli phenomena are cited as being very suggestive.

—LeRoy Long.

A New Therapy Against Infection: Charcoal Intravenously (Une Nouvelle Therapeutique Anti-Infecteuse: Le Carbone Intraveineux). By A. Touraine

and B. Menetrel l'Hopital Saint-Louis, Paris, La-Presse Medicale, December 12, 1934.

In the February 1934 number of L'Union Medicale du Canada there was an article by Eugene Saint-Jacques, Montreal, on "The Treatment of Various Infections by the Intravenous Injection of Animal Charcoal" (Sur le Traitement des Infections Variees par les Injections Intraveneuse de Carbone Animal). An abstract of the article was published in this section of the Journal for April, 1934.

Soon after that I had an opportunity to discuss the matter with a confrere who is a member of the organization to which the report had been made. He treated the claim of Saint-Jacques rather lightly and with some show of Gallic sarcasm. Speaking of the report, he said: "Nous lui avons dit des choses." (We told him things.)

Now here is another article about the same subject. The authors were apparently stimulated to do some experimental investigation by a report of the work of Saint-Jacques to the Paris Academy of Medicine by Prof. Sergent January 30, 1934. (See Bulletin de l' Academie de Medicine de Paris, Vol. CXI, No. 4.)

Incidentally, it is interesting to note that Saint-Jacques uses the word "carbone," and that in this article the words "carbone" and "charbon" are used interchangeably when speaking of charcoal. While "charbon" is the word most commonly employed, it appears that "carbone" is permissible.

Touraine and Menetrel employed a suspension of "carbone animal" (animal charcoal) as advised by Saint-Jacques, and in the main agree with him that the intravenous use of a sterile 2% suspension of it, pulverized to the greatest possible extent, is useful in many infectious processes, and that it is practically harmless when as much as 3 cc. or 4 cc. is given intravenously. I say "practically harmless" because these authors have observed shock with chills in one or two patients. They report, too, very encouraging results, but along with them some partial and complete failures.

After some experimental work, the authors undertook the development of an "activated" preparation of charcoal for intravenous medication. They found that among the "activated" charcoals of vegetable origin there was one which was not an extract of wood. (Parmi les charbons actives d'origin vegetale il en exist un qui n' est pas extrait de bois"). They say that it has powers of absorption and adsorption; that it is charged electrically, and that it has even a gamma radiation that can be photographed, but its definite origin is not indicated. In its preparation it is calcined at a "very high" temperature in contact with metalic vapors, minutely neutralized (minutieusement neutralize"), ground, pulverized, sifted so that the fundamental grain ("grain fondamental") does not surpass 2 or 3 microns. For use, a suspension of 2% in physiological serum is made.

The authors believe that the activated vegetable charcoal devised by them is more effective and even less harmful than animal charcoal—this notwithstanding the warning of Saint-Jacques in his original report that it must be animal charcoal and NOT vegetable charcoal.

There are only hypotheses about the rationale of action. **In vitro,** charcoal suspensions have no bactericidal powers at all. It is suggested that the charcoal fixes and neutralizes the toxins. The authors believe that in the organism there are phenomena analogous to those observed in connection with charcoal filters for the sterilization of water, and in the manufacture of gas masks. ("Il se passerait dans l'organisme des phenomenes analogues a ceux que l'on a observes en utilisant les filtres au charbon active pour la sterilisation des eaux et la fabrication des masques a gaz asphyxiants".) Then, again, it is believed that the presence of the charcoal in the blood rapidly augments the polynuclear cells which act as phagocytes. And, yet again, that the bacteria may adhere to the charcoal particles, both the particles and the adherent bacteria being subjected to phagocytosis.

The authors believe that the treatment of various infections by intravenous injection of charcoal is easy, harmless, even in children. They regard it as an interesting method that ought to be tried on a grand scale. ("En resume, le traitement par le carbone intraveuneus est d'un emploi facile, d'une innocuite absolue, meme chez l'enfant. C' est la une methode qui parait interessante, et qui doit etre essayee sur une grande echelle".)

—LeRoy Long.

Intractable Dysmenorrhea. By Frederick S. Wetherell. American Journal of Obstetrics and Gynecology, March, 1935, page 334.

This author is reporting three cases of intractable dysmenorrhea treated by resection of the superior hypogastric plexus (sympathetic neurectomy). All three cases obtained relief. The author reports no difference in libido nor any interference with subsequent pregnancy or delivery.

The following are the conclusions drawn by the author:

"The operation of resection of the superior hypogastric plexus of sympathetic nerves for the relief of dysmenorrhea, rightly belongs in the domain of the gynecologist; one who is able to analyze the individual case and to determine whether everything has been done in a medical way for the relief of the dysmenorrhea. Furthermore, it is necessary that he be able to judge the necessity for removal of gross pathologic conditions if found present. It is not merely a question of whether the surgeon is able to resect the plexus, but whether the individual case has been studied and that nothing remains to afford relief except surgery. In the light of previous radical treatment, such as radiation, hysterectomy, or the use of opiates, the operation here discussed is a conservative one, but the ever present possibility of a mortality must be kept in mind and the operation advised only in those cases in which there is definite evidence that no treatment other than the previously mentioned radical procedure, is of avail. Furthermore, the operator's experience should be such, that in cases of secondary dysmenorrhea requiring other surgery, the operation will be performed with such rapidity as will allow enough time for the added nerve resection without jeopardizing the patient's chances."

Comment: Resection of the superior hypogastric plexus has a distinct field of usefulness in the treatment of intractable dysmenorrhea. However, considering the prevalence of this condition and the subjective character of the symptomatology, it is strongly felt that the risk of operation should contraindicate its employment except in those cases in which there is definite evidence that no treatment short of radiation, hysterectomy or the use of opiates can be successful.

—Wendell Long.

ABSTRACT

Flinn, Frederick B.—Some Clinical Observations on the Influence of Certain Hygroscopic Agents in Cigarettes, Laryngoscope, 1935, XLV No. 2, 149-154.—Mulinos & Osborne (Proc. Soc. Exper. Biol. and Med. 32: 241-245, 1934) using rabbits showed the edema caused by cigarettes using diethylene glycol as hygroscopic agent to be less than that from cigarettes using glycerine. Flinn reports a number of clinical observations. In cases showing congestion of some portion of the mucous membrane of upper respiratory tract as result of smoking glycerine treated cigarettes, on smoking cigarettes containing diethylene glycol, congestion disappeared in 62.3 per cent and considerable improvement noted in other 37.7 per cent. On returning to glycerine treated cigarettes 80 per cent showed a return to the congested condition of the pharynx and larynx. Coughs and irritation of the tongue showed analogous results.

"**Summary**: The combustion products of glycerine when it is used as a hygroscopic agent in cigarettes will under certain conditions cause an irritation of the throat. The combustion products of diethylene glycol cause only a slight irritation, if any, of the throat. There is some evidence that they may be beneficial where irritation is present."

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